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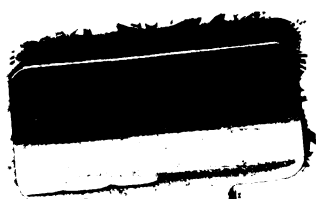
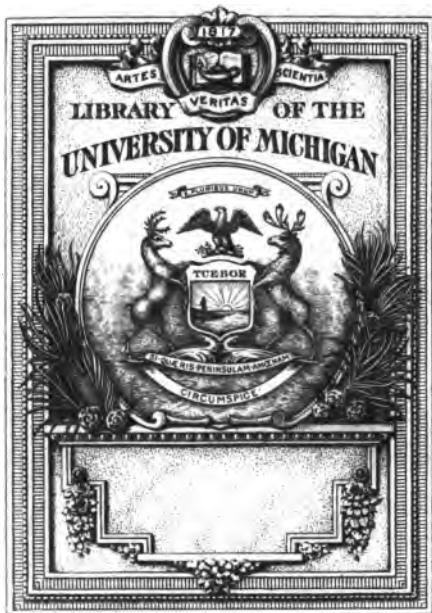
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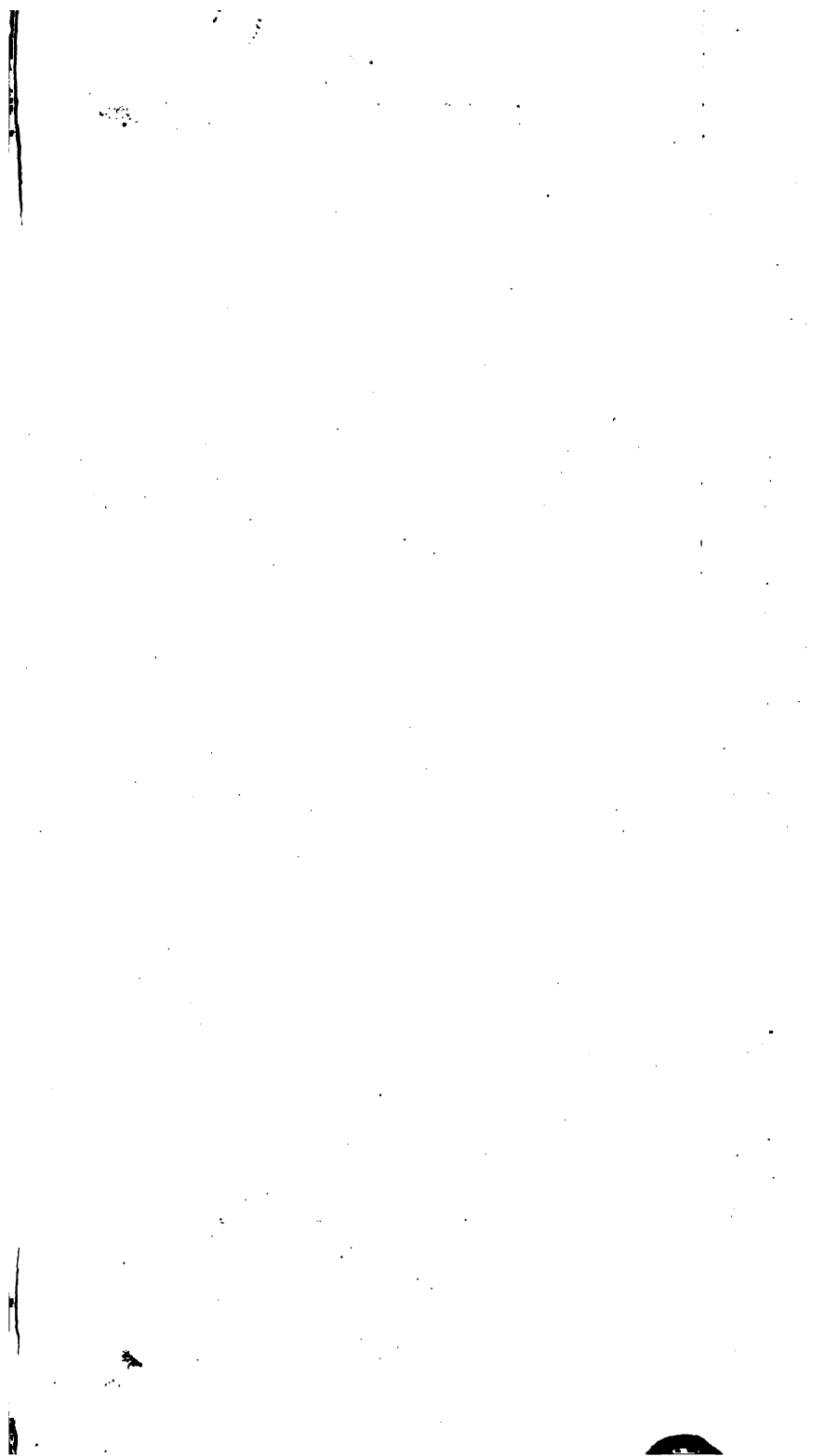
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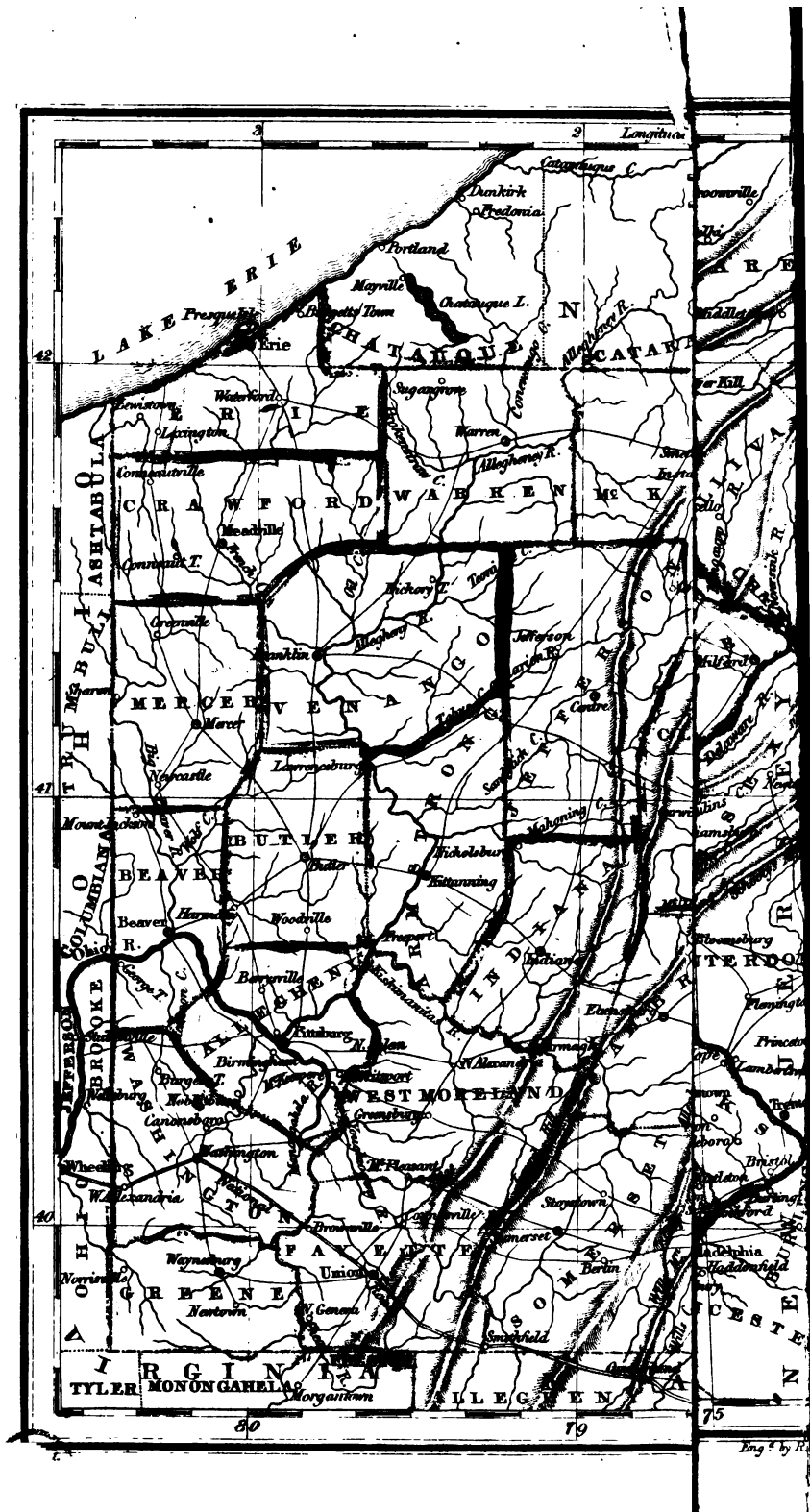
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GEOGRAPHICAL, HISTORICAL,

AND

STATISTICAL

REPOSITORY.

BY WILLIAM DARBY,

Author of a Map, and Statistical account of Louisiana; Emigrant's Guide; Tour from New-York to Detroit; Memoir on Florida; and Universal Geographical Dictionary.

VOL. I.

PHILADELPHIA;

PUBLISHED BY THE AUTHOR, NO. 2 NORTH SEVENTH STREET.

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INTRODUCTION.

IN presenting to the public eye the first Number of the Repository, it may not be irrelevant to enter with some more minuteness into the views intended to be embraced than has been done in the original Prospectus. As proposed, the work will be subdivided into three parts :

SECT. I. This section will be appropriated to subjects purely Geographical ; in which, however, that term will be considered as taken in its most extensive sense, including Natural and Political Geography. It is intended to present the reader with geographical sketches of any part of the world, which, from particular causes, may claim a peculiar and instantaneous attention : such attention is generally excited by war, political revolution, or recent discovery. These are inexhaustible sources of interest, which, in their occurrence, enforce, stimulate, and localize curiosity. They are sources of intellectual reflection, which, when ceasing to flow, or becoming partially exhausted in one quarter, open copiously in some other region of our ever changeful earth. The task of the editor will be to watch the progress of those changes, and point out to his reader the result.

Though the scope of this section is thus expressed in general terms, the pages of the Repository will be, in great part, employed to delineate the particular Natural and Political Geography of the United States. As usually described in common geographical systems, the various subdivisions of the earth are represented as mere skeletons. The student from such treatises derives no more real knowledge of the capabilities of any country, than he could obtain of the character of an individual by being informed of his height and weight.

Geography, as a science, is moral. The interest we feel in tracing the features, developing the resources, and in scanning the improvements of any given portion of the earth, must arise from the character of the people who inhabit its surface. In this respect, not alone the territory of the United States, but all America, is gaining daily more to arrest the attention of the statesman and philosopher.

The Geography of the United States is a vast outline, tolerably traced, but the shades of colouring remain a void,

except in a few instances. The intrinsic value of statistical knowledge can only be known from its application in augmenting the sum of general prosperity by pointing out the springs of general resource. This invaluable pursuit has only recently assumed the character of a science, and, as such, is yet confined to a few countries, and is every where imperfect. The editor anxiously desires to become enabled to dedicate his entire time and attention to the undertaking he now places before the public, and in aid of which he solicits patronage. His own individual fitness or unfitness to do justice to an enterprise, involving so many details, on three of the most dignified objects of human study, can be only known from the execution of his enterprise. The importance of the subjects needs no farther amplification; the issue is left to the candour, generosity, and discernment of an enlightened public.

Similar observations may be made respecting every other section of this continent. Cities, towns, states, and even empires are rising with a rapidity which mocks the regular progress of geographical record. A periodical publication, therefore, in which every such object would meet prompt notice, must produce great public benefit.

Important as it may be as a moral and physical science, geography derives its highest value as an aid to human history. In this respect our views of nations are clear and decisive in proportion as we possess a comprehensive knowledge of their locality. Under the general head of Geography, in the Repository, will be included, all that appertains to either natural feature or natural production. With this latitude must be embraced every object relating to countries, either in a state of nature, or as improved by art.*

SECT. II. This section will be Historical, and dedicated principally to record the leading events of the present or passing time; but, as many instances must occur, when to judge of the existing, we are compelled to review the anterior state of nations, the Historical sketches will be often retrospective beyond what can be considered the present age. It would be vain, however, in this place, to anticipate the course necessary to pursue respecting objects, the importance or extent of which can only be shewn by time.

In conducting the Repository, many very substantial reasons have induced me to open the work with Pennsylvania; the first two volumes, consisting of six numbers, or 384 octavo

* See page 9.

pages each, will therefore be appropriated to give a view of the geographical features ; the natural productions ; improvements of every species ; and the civil and political History of Pennsylvania.

In order, to develop clearly, the history of Pennsylvania, it is indispensable to take a retrospective survey of the antecedent colonial establishment of England in North America. This investigation leads to a review of the colonial history of Virginia, Plymouth, Massachusetts, Connecticut, New-Haven, Rhode Island, Maryland, New-Jersey, Delaware, and New-York, previous to the date of the first charter of Pennsylvania.

In my public Historical Lectures, in Philadelphia and New-York, I have uniformly proceeded on the principle, that to understand our national, it was imperatively necessary to have carefully studied our colonial history ; and that to comprehend the latter with adequate accuracy, the colonies must be examined in connection.

The preliminary matter must of course be treated of briefly, as accessory to the main subject, the history of Pennsylvania. The early events however, in the establishment of New-Jersey, Delaware, Maryland and Pennsylvania, were so blended as to superinduce considerable detail on the three former colonies, in order to trace the progress of the latter with perspicuity.

Myself a native of Pennsylvania, I had at various periods travelled extensively over its surface ; but having conceived the design of becoming its historian, I have availed myself of every opportunity to examine those parts I had not formerly visited.

From the 2d of March, 1823, until the 25th of June, 1824, I was employed in travelling, most of the time in the interior of Pennsylvania. My object was an examination of those parts of the state I had not previously visited. In all my geographical disquisitions I have written, as far as in my power, from actual observation. Employed as I have been, in such labour for nearly 30 years, from governments, as such, I have not received the aid of one cent, and very little patronage from individuals directly connected with governments. It was from the liberality of individuals in private life, that my support has been, and I expect will continue to be drawn. Once more my appeal is made to the public. Six numbers form a volume, and consequently, two volumes will be published annually. The subscribers are only bound to continue their patronage to one volume ; the execution of which will fully test the talents of the author to do justice to his subject.

Should the Repository be continued, and adequately executed, it is obvious that a few years must render its volumes a source of material for that literary desideratum, a general history of the United States.

Each volume will have prefixed a map of such parts of the United States, as are more particularly treated of; and will have annexed a copious index. The Map of Pennsylvania will attend the first, and that of New-Jersey will be included in the second volume.

I have adopted, when treating on mountains, System as a generic term, and Chain as specific. This is indispensable respecting the great central mountains of the United States. Considered as a system, this great mountain mass is composed of several lateral ridges. These ridges literally extend like links of a chain. Broken by rivers or creeks, or otherwise interrupted, they are still continuous, to a great or lesser distance. Allegany is rendered inapplicable as a distinctive name of the system from being applied to one of its chains.*

I know of no former attempt to give a philosophical analysis of the mountains of the United States, and from the existing and strengthening spirit of canal and road improvement, I am acquainted with no branch of geography of more national importance. It is a subject on which, in conducting my Repository, I shall lose no opportunity to collect and record accurate information.

The mountain chains of Pennsylvania have a grandeur of appearance, and a mass of mineral wealth, which combine to give them interest to the geographer, and natural historian. The inexhaustible stores of iron ore and mineral coal in and near the chains traversing this state, are in themselves objects of primary magnitude, and leading elements in every statistical review of its most essential natural resources. It is therefore, the more necessary to obtain detailed and correct conceptions of features forming so deeply and prominently a part of the geography, and so permanently influential on the improvement and prosperity of the state.

European geographers have, very correctly, adopted different terms to designate the spaces drained by rivers discharged into oceans, and those of their minor branches; for the former, *Basin* is used, for the latter, *Valley*. This nomenclature I have also adopted, and consequently say *Basin* of Delaware, and *Valley* of Schuylkill; *Basin* of Mississippi, and *Valley* of Ohio; and use a similar distinction wherever necessary. In my public Lectures, and geographical disquisitions generally,

* See note, page 12.

I have made use of the term Atlantic slope, as a collective name for that part of the United States, and British provinces, the rivers of which are discharged into the Atlantic ocean.

Rivers are, of all natural tracts in the physiognomy of any country, those that most directly enhance intercommunication. It is a narrow and contracted view of canal or road creation, in such a country as that of the United States, to consider it of local interest. No canal, or road traversing any state, can have its resulting benefits confined to that particular political section. Any correct delineations given of any river, must consequently have not a local, but a national value. This is in a high degree true as respects the Susquehanna and the Ohio, and their confluents. The success of the sublime experiment made in the state of New-York, has lessened the incredulity of the human mind, and induced men to inquire into the practicability of constructing canals in places formerly overlooked, and have been led to engage in such undertakings with physical means, deemed hitherto as entirely inadequate. The national legislature has been at length influenced by this revolution in public sentiment, and has instituted a series of inquiry which, whether the projected canals are undertaken or not, must produce results greatly overbalancing in value any attendant expense.* It is much to be hoped that these surveys may be extended to the Susquehanna, in all its branches. Few are aware of the immense field of improvement which may be opened by the channel of this magnificent stream. Should the canal route by the Potomac and Ohio, that by the Susquehanna and Seneca lake, or either be completed, the effects will be felt to the most remote extremes of the United States, and links of adamant strength formed to secure the integrity of our confederacy. The epoch of such a consummation may be hailed as a jubilee, and it may then be said truly, "the mountains have disappeared." Their towering summits may indeed remain, to give richness and splendour to the scenery, but their moral and political effects will have ceased.

SECT. III. In this department the subjects will be purely Statistical, and dedicated to the descriptions and notices of public improvements and discoveries, more especially those in the United States. Under this head will be ranged all matter relating to canals, roads, bridges, important post-office regulations, manufactories, mineralogical operations—and in fine, upon every object connected with the advance or retrogradation of society, in the cultivation of those sciences, or the

* See Section III. of this number.

practice of those arts conducive to the promotion of individual comfort or aggregate force. In the performance of such an enterprise, our mite, however humble, will be given to aid in the development of national, sectional, and individual resource.

In every department of the Repository, the far greatest part of the matter will be original composition. It is not my intention to make the statistical section of my miscellany a collection of scraps. When any public improvement is either completed or proposed, such information as I can procure on the subject shall be placed on record; and with such geographical explanation, as to render the statistical matter intelligible.

It is inutile to detain the reader by farther explanations. A specimen of the Repository is before the public in this number. The general principles of the publication have been developed; and it may be safely asserted that no existing periodical paper in the United States can answer its purposes. An adherence to the general plan, it must be obvious, will save the reader the fatigue of perusing indigested document. The Repository will assume an aspect the opposite of a Register; as in the latter, state papers form the body of the work, whilst in the former, their substance is preserved, but reduced in magnitude, and presented in the more inviting shape of historical narration.

Recent treatises on subjects connected with those of the Register will be, when their existence is made known to the editor, noticed at the close of each number. The general scope of such works will be laid before his readers when criticism shall be in his power by perusal.

A copious index will close each volume, and be published with the last number. The index will be appended to the volume, and printed on an extra sheet; consequently, each volume will contain nearly, if not altogether 400 pages.

Thus I have placed before its reader the intended character of the Repository. It cannot escape the least observing, that much labour and active research must be called into requisition to fulfil its promise. The difficulties of performance, nor incapacity of execution can be pleaded as an excuse for inefficiency, but candour will excuse many imperfections in a novel and incipient undertaking. With the utmost confidence in the liberality of that public whose generous indulgence I have so oftend experienced, I now launch into the performance of my arduous enterprise.

WILLIAM DARBY,

Philadelphia, August 14th, 1824.

DARBY'S
REPOSITORY.

VOL. I.

SEPTEMBER, 1824.

Nº I.

SECTION I.

GEOGRAPHICAL VIEW OF PENNSYLVANIA.

To preserve perspicuity, we are compelled, in geographical disquisitions, to precede the natural by a description of artificial subdivision. This method is indispensable, as references are perpetually necessary from the former to the latter. In the Repository the arrangement will be as follows :

Name, origin of.

Natural position, as respects latitude, longitude, and contiguous states, territories, &c.

Extent, Boundaries, and Political, or other conventional subdivisions.

Natural features—Mountains—Their range ; elevation ; component matter ; geological formation, and mineral productions.

Rivers—Their course ; area they respectively drain ; their contained facilities or obstructions to navigation. Vegetable and mineral productions generally.

Climate and Seasons—Their effects on vegetable life, and on the navigation of rivers and canals. How influenced by relative elevation ; exposure ; contiguity to land or water, and by other general or local causes.

Artificial features—Cities, towns, roads, canals, bridges, manufactories of every description ; colleges, schools, churches, and charitable establishments.

VOL. I.—B

No. 1.

As far as practicable, the subject matter will follow in regular order, as it is the desire of the Editor to render his work as easy of reference as within his power.

In accordance with previous notice, the first two volumes of the Repository will be occupied with Pennsylvania, and such other parts of the United States, the civil history of which is closely blended with that of the primary subjects of disquisition. A similar course will be continued, should any other great section of the United States be taken up in the future volumes of the Repository.

It is in general extremely difficult to trace civil history up to the period of writing. So complicated are the details of the passing moment, and so conflicting the evidence upon which is to be established, the truth of facts alleged to have occurred, that much caution must be exercised by that journalist whose pages will contain only real history. The editor, therefore, begs leave to recur to an expression used in his original Prospectus,—“*No statement will be made in any department, until the subject matter has assumed the stamp of certainty.*”

It will, of course, be obvious, that the thread of history must, in every instance, be broken before reaching the time of publication; and it will, however, be equally evident, that as it progresses, the Repository must be constantly accumulating treasures of historical fact.

PENNSYLVANIA. This name is derived from the surname of William Penn, and Sylvan, woods; and means, literally, Penn's woods. Though at the epoch when the name was imposed, the real features of the country it was in future to designate, were in great part unknown, to those who were its authors, no term could be more appropriate. Few, if any, regions of equal extent, and in one continuous body, ever bore, in a state of nature, a more dense forest. Pennsylvania was an expanse of woods, in the strictest acceptance of the word.

As now limited, Pennsylvania extends from N. Lat. 39° 43' to N. Lat. 42° 16'; and from 2° 20' E. to 3° 36' W. from Washington City.*

* From the operation of causes, which will be shewn in the sequel, Pennsylvania has assumed a local extent very different from the charter of its political creation. Its laws and the liberty of its inhabitants were the fruits of design; its boundaries, in some measure, that of accident.

Pennsylvania is bounded in common with Delaware,	
from the Delaware river by a circular line, around	
New Castle county, to the N. E. limits of Cæcil	<i>Miles.</i>
county, Maryland, - - - - -	24
Due north to the N. E. angle of Maryland, - - -	2
Along the northern limit of Maryland, - - -	203
In common with Virginia, from the N. W. angle of	
Maryland to the S. W. angle of Greene county, -	59
Due north, in common with Ohio, and Brooke coun-	
ties of Virginia to the Ohio river, - - - - -	64
Continuing the last noted limit, in common with Ohio	
to lake Erie, - - - - -	91
Along the S. E. shore of Lake Erie to the western	
limit of New-York, - - - - -	39
Due south along Chataque county of New-York to	
N. Lat. 42°, - - - - -	19
Thence due east in common with New-York, to the	
right bank of Delaware river, - - - - -	230
Down the Delaware to the N. E. angle of the state	
of Delaware, - - - - -	230
<hr/>	
Having an entire outline of - - - - -	961

The greatest length of Pennsylvania, is due west, from Bristol on the Delaware river, to the eastern border of Ohio county in Virginia, through 356 minutes of longitude, along N. Lat. 40° 09'. This distance, on that line of latitude, is equal to 315 American statute miles.

The greatest breadth 176 miles, from the Virginia line to the extreme northern angle on Lake Erie.

General breadth, 188 miles.

The area of Pennsylvania has been variously stated, but probably never very accurately determined. In both Morse's and Worster's Gazetteers, the superficies is given at 46,000 square miles.* Other authorities vary, but I find from com-

* On the large state map, by Melish, the area is given at 43,950. From the peculiar manner of collecting and collating the materials for Melish's map, we ought to consider it the best authority as to the extent of the state it represents; but it yields to the test of actual calculation, and gives to the state nearly one-fifteenth too little area. The error arose, no doubt, from using the common, but very inaccurate mode of estimating curve superficies by maps. The surface being curved, if the smallest county in Pennsylvania was calculated by its length and breadth on a map, the quotient would be rather the area of the base, than that of the curve superficies. Every county being thus subject to a small decrement, the aggregate of the whole would yield an amount considerably too small. A measurement of the whole state, on such principles, would be liable to similar error.

From placing a much too implicit confidence in the state map, I gave the

paring the best maps, and from calculating the rhumbs, and parts, occupied by the state, that Pennsylvania includes above 47,000 square miles. Rejecting the fractional excess, and using that curve superficies, the state will contain thirty million and eighty thousand statute acres.

The mountains of Pennsylvania, obtrude themselves at the first glance on a map, as the most prominent of its natural features. No even tolerably good survey having ever been made of the mountains of this region, and many important chains having been entirely omitted, a lucid classification is attended with great difficulty. Some of the collateral chains hitherto overlooked, I have supplied from personal observation; but no doubt much remains to be added or rectified, by future research.

The structure and position of its mountains, has given to Pennsylvania an aspect peculiar to itself. The Appalachian* system in the United States, generally extends in a direction, deviating not very essentially from south-west to north-east; but in Pennsylvania, the whole system is inflected from that course, and passes the state in a serpentine direction. Towards the south boundary, the mountains lie about north north-east, gradually inclining more eastwardly as they penetrate northwards; and in the central counties, many of the chains lie nearly east and west; but as they extend towards the northern border of the state, they again imperceptibly incline to the north-east, and enter New-York and New-Jersey in nearly that direction.

The influence of the mountains in modifying the general features, is very obvious, far beyond, where any chains or ridges are sufficiently elevated to be classed as parts of the Appalachian system. It will be, however, shewn in the progress of this review, that the mountain system is very much too greatly restricted, not alone in Pennsylvania, but also in Maryland, Virginia, New-York, and New-Jersey.

Without attending to minor claims, the mountains of Pennsylvania, advancing from the south-east to north-west, are as follows:

Though omitted in most maps, a chain enters the south boundary of York county, and cut by the Susquehanna river,

area of Pennsylvania, in my Geographical Dictionary, 43,950 square miles; but from a rigid calculation, I now find a very material difference between the real area and that taken from this map.

After considerable labour, I have found the area of Pennsylvania above 47,000 square miles, but have assumed that round sum as more convenient, and more easily remembered, than a number incumbered with fractions.

* The term Appalachian is certainly preferable to that of Allegany, if for no other reason than, that the latter, particularly in Pennsylvania, is applied to one of the chains of the system.

rises in, and traverses Lancaster county between Pequea and Octorara creeks; and between the sources of the Conestoga and Brandywine, separates for a short distance, Lancaster and Chester counties. Continuing between Berks and Chester, it is interrupted by the Schuylkill above Pottstown. Rising again, and stretching north-east, forms first, the boundary between Montgomery and Berks; thence between Lehigh and Bucks, and separating Northampton from Bucks, reaches the Delaware. Pursuing a north-east course through New-Jersey, separating Sussex from Huntingdon, Morris, and Bergen counties, enters New-York between the sources of the Wal-kill and Passaic rivers; and extending, in broken ridges, through the south-east part of Orange county, forms the Highlands near West Point.

The almost uniform neglect of professed geographers respecting this strongly marked feature, attests the infancy of the science in the United States. After having formed the celebrated masses on both sides of the Hudson between Newburg and West Point, the ridge continues north-east, separating Putnam from Dutchess counties. Inflecting to the north, and forming the separating ridge between the waters of the Hudson and Housatonic rivers, stretches through the eastern part of Dutchess, Columbia, and Rennssalaer counties. Along the two latter, however, the ridge under review, forms, in reality, the separating boundary between New-York and Massachusetts; and entering the south-west angle of Vermont, continues through that state, by the name of Green Mountains, into Lower Canada. Thus prominent and continuous, from the Susquehanna to the north-east, this part of the Appalachian system is equally so through Maryland, Virginia, and North Carolina. Passing over Harford, Baltimore, Anne Arundel, and Montgomery counties, in Maryland, it forms falls in the Potomac, twelve miles above Georgetown, and extends into Virginia in Fairfax county. Varying in distance from twenty to thirty miles the Great Kittatinny or Blue Ridge, and the ridge we have been tracing, traverses Virginia into North Carolina. Leaving Virginia in Henry, and entering North Carolina in Stokes county; with its farther range I am unacquainted, but have no doubt but that it is distinctly continued over the Carolinas and Georgia into Alabama. Though the structure of the Atlantic slope, decidedly evinces a conformity to the Appalachian system, far below the south-east mountain, it is the terminating continuous ridge towards the Atlantic ocean.

North-west from, and nearly parallel to, the South mountain, another very remarkable ridge traverses New-Jersey and

Pennsylvania, and similar to the former, the latter is unknown in either of these states, by any general name. Its continuation in New-York is designated by the Shawangunk. Between the Susquehanna and Potomac, it is termed relatively, the South mountain; and in Virginia and the Carolinas, it forms the Blue ridge; and entering the north-west part of Georgia, is gradually lost amongst the sources of Chatahooche river.

To preserve perspicuity, I have adopted, or rather extended the name Blue Ridge, into Pennsylvania and New-Jersey. This very remarkable chain of the Appalachian system enters Pennsylvania, on its southern line, and stretching north between Adams and Franklin counties, reaches the southern angle of Cumberland, where it turns to north-east, and extending towards the Susquehanna, separates Cumberland from Adams and York counties. About six miles below Harrisburg, the Blue Ridge, is pierced or broken by the Susquehanna, and again rising below the mouth of Swatara, crosses the southern angle of Dauphin; thence known as the Cone-wago hills, separates Lebanon from Lancaster county, enters Berks, and reaches the Schuylkill at Reading. Continuing through Berks, Lehigh, and Northampton counties, the Blue Ridge passes Allentown, Bethlehem, and Easton, is again interrupted by the Delaware, below the latter town. Extending through Sussex county, the Blue Ridge enters New-York, and is finally terminated in the Shawangunk, on the west side of Hudson river, and amongst the branches of the Walkill.

In one respect, the South-east mountain and Blue Ridge, in Pennsylvania and New-Jersey, differ from other sections of the Appalachian system. The two chains we have noticed, are formed of links more detached, than are those more remote from the Atlantic ocean; but, otherwise in respect to component matter, range, and vegetation, are in every place well marked sections of the general system. The very unequal elevation of their various parts, may, perhaps, be also adduced, as a characteristic of the South-east mountain and Blue Ridge. The former does not, it is probable, in any part of Pennsylvania or New-Jersey, rise to 1000 feet above the level of the Atlantic ocean, whilst in New-York, at the Highlands, some of the peaks, particularly Butterhill, exceeds 1500 feet elevation above tide water; and in Massachusetts and Vermont, towers to near 3000 feet. If taken generally, the Blue Ridge, in Pennsylvania and New-Jersey, is more elevated than the South-east mountain, yet no particular part of the former rises to an equal elevation with the Highlands, on either bank of the Hudson.

In Maryland, the Blue Ridge assumes a very distinctive aspect, and separating Frederick and Washington counties, is broken by the Potomac at Harper's ferry, below the mouth of Shenandoah. This fine chain crosses, and adorns Virginia, and North and South Carolina. In one remarkable circumstance, the Blue Ridge stands alone amongst the mountain chains of the United States. From the Susquehanna, to the north-west angle of South Carolina, in a distance of upwards of 500 miles, it every where forms a county demarcation.

The third, and in some respects the most remarkable chain of Pennsylvania, is the Kittatinny. Known by divers local names, the Kittatinny, in a survey advancing from south-west to north east, first rises distinctively in Franklin county, and like other chains in the southern margin of Pennsylvania, ranges a little east of north; but inflecting more to the north-east, extends to the Susquehanna, separating Cumberland and Perry counties. Five miles above Harrisburg, the Kittatinny is interrupted by the Susquehanna. Broken also, by the Swatara, the Schuylkill, the Lehigh, and Delaware, the Kittatinny enters New-Jersey, through which it passes into New-York, and forms, by its continuation, the Catsbergs. The general aspect of the Kittatinny is much more continuous than any other mountain chain of Pennsylvania. It is, however, very far from being uniform in elevation, varying from 800, to perhaps 1500 feet above tide water.

North-west from the Kittatinny, though more elevated, the chains are much less distinctly defined. Between the Kittatinny mountain, and the north branch of Susquehanna river, the intermediate country is in a great part composed of high rugged mountains, and narrow, deep, and precipitous valleys. This is the most sterile and least improvable part of Pennsylvania; but it is the region producing the most extensive masses of Anthracite coal, known on the globe.

The confusion in the natural arrangement of the Anthracite* section of Pennsylvania, is more apparent than real. The Kittatinny mountain and Susquehanna river, lie nearly parallel upwards of seventy miles; distant from each other about 35 miles. The intervening space is filled by lateral chains, rising in many places, far above any part of the Kittatinny. Amongst these chains, two are worthy of particular notice, and serve, pre-eminently to elucidate the very peculiar topography of interior Pennsylvania.

Bedford and Franklin counties are separated by a chain,

* I have taken the liberty to introduce this term for the country under review, descriptive of its most abundant and most valuable mineral production.

there known, as Cove mountain. With a change of name, to Tuscarora mountain, the latter chain separates Franklin from Huntingdon, and Perry from Mifflin, and reaches the Susquehanna nearly opposite the southern extremity of Northumberland county. Rising again below the Mahantango river, and broken into vast links, the chain divides into nearly equal parts, the space between the Kittatinny mountains and the main branch of Susquehanna river. Broad mountain passed on the road, from Easton and Bethlehem to Berwick, is one of the great links of this central chain.* With its extension north-east, towards the Delaware, I am unacquainted.

More accurate surveys would, it is more than probable, identify, Sideling hill, of Bedford county, Jack's mountain, of Huntingdon and Mifflin, and the central chains of Union, Columbia, and Luzerne counties. The chain which rises on both banks of the Susquehanna, in Luzerne, is amongst the most interesting features, not only in the United States, but the world. The very peculiar structure of this valley will be noticed more appropriately, when treating of the rivers of that part of Pennsylvania. In the present instance, it is the mountains we have before us, and to which our attention is directed. Below Sunbury, a chain commences, or if my supposition is correct, is continued up the Susquehanna, along its left shore; this chain is crossed by the river above Danville, and again above Catawissa. From the latter place, the chain stretches to the north-east, through Columbia, enters Luzerne by the name of Nescopeck mountain, and mingles ultimately with other chains, and is terminated towards the southern angle of Wayne county. Nearly parallel to the Nescopeck, and with a comparatively narrow intervening valley, another chain leaves the Susquehanna, above the borough of Northumberland, and traversing Northumberland and Columbia counties, enters Luzerne, and is broken by the Susquehanna sixteen miles below Wilkes-Barré. Skirting the left bank about eight miles, it is again crossed by the river, and continuing its course north-east, passes about two and a half miles from and opposite Wilkes-Barré. Preserving its course north-east, it is for the third and last time, crossed by the Susquehanna, above the mouth of Lackawannock creek, ten miles above Wilkes-Barré, and stretching towards the Delaware, is lost in Wayne county. Beyond the main branch of Susquehanna, to the

* Broad mountain I found considerably more elevated than Kittatinny. When on the highest part of the eastern slope of the former, the Blue Ridge was distinctly visible to an immense distance over the latter. I am inclined to consider the summit of Broad mountain elevated at least 2500 feet above tide water.

north-west, the chains lie nearly parallel to those south-east from that river. The structure of the country, on both sides of the Susquehanna nearly the same. The yet discovered mines of Anthracite coal, advancing from south-east to north-west, cease, in the chain immediately opposite Wilkes-Barré.

To the eye, the region included between the west branch of Susquehanna, and the Potomac, bears a strong analogy to that between the west and north branches of Susquehanna, but a minute scrutiny exposes a great change advancing south-west towards the borders of Maryland. Soil and vegetation both differ materially. The beech, hemlock, and sugar-maple forests, are succeeded, in the valleys, by oak, hickory, and elm. Thus far the entire drain of Pennsylvania is into the Atlantic ocean. The chain called the Allegany, forms, in the southern parts of Pennsylvania, the dividing ridge between the Atlantic slope and the valley of Ohio.

Allegany mountain has, no doubt from this circumstance, received its pre-eminence amongst the mountain chains of Pennsylvania, Maryland, and Virginia. Only about sixty miles of its range in the former state, however, does separate the sources of the streams of the two great natural sections, the Atlantic Slope and Ohio valley. The Allegany chain leaving Allegany county, in Maryland, separates Bedford and Somerset counties, and extending in a northerly direction, also separates the north-west part of Bedford from the south-east part of Cambria county. At the extreme northern angle of Bedford, the Allegany turns to north-east, and is thence drained on both sides by the tributary streams of the Susquehanna. Discharging the waters of the west branch to the north-west, and those of the Juniata and Bald Eagle rivers to the south-east; the Allegany reaches the west branch of Susquehanna at the mouth of Bald Eagle river.

Here, once more, the defect of our maps are strikingly apparent. Lycoming county is delineated as if no mountain chains traversed its surface. This is not the fact, though too little is known of that part of Pennsylvania, to admit a classification of its mountains. If I was to hazard a conjecture, I should make the chain which crosses the Susquehanna in Bradford county, near to, and below Towanda, the continuation of the Allegany. It may be remarked, that it is only in a few places east of, and those immediately in its spurs, that bituminous coal has been hitherto discovered in Pennsylvania on the Atlantic slope; whilst this mineral abounds north-west from the Allegany chain. This locality of bituminous coal

prevails across the whole state, and is found from near Towanda, in Pennsylvania, into Maryland.*

How far, and to what extent, the bituminous coal formation, spreads into Virginia, I am unable to determine. The Allegany chain may, in the existing state of our mineralogical knowledge, be viewed as the limit between the two species of coal in Pennsylvania.

Whatever may be the elevation of its summit, the base of the Allegany chain, between Bedford, and Somerset, and Cambria counties, constitutes the height of land between the Ohio river and Atlantic tides; and forms also, a similar demarcation in Maryland. This circumstance is entitled to our serious notice, from this region being the intended route of the Chesapeake and Ohio canal. The summit level, or Cumberland road, as given by Mr. Schriver, is 2825 feet.

As a mountain chain, the Allegany yields in grandeur of scenery, and in elevation above its base, to not only the Broad mountain, but to many other chains of the Appalachian system.

Chesnut Ridge is the next chain west of the Allegany; the two chains extending nearly parallel, and about twenty miles asunder. Though comparatively humble in respect to elevation, Chesnut Ridge is one of the most extended chains of the system to which it appertains; reaching by various local names over Virginia, into Tennessee, and most probably into Alabama. As placed on our maps, Chesnut Ridge enters Pennsylvania at the north-west angle of Maryland, and ranging a little east of north, forms the boundary between Union and Somerset; thence between Westmoreland and Somerset, and finally between the north-east angle of Westmoreland and the south-west of Cambria county. At the extreme north-east angle of Westmoreland, the Chesnut Ridge reaches the Kiskiminitas river; and as delineated, its termination. So far from being so in nature, this chain preserves its identity through the state farther north than any other chain of the Appalachian system.

Laurel Hill is the last chain of the system in Pennsylvania. What has been already observed respecting the comparatively depressed chains nearest the Atlantic ocean, may be repeated

* In June 1823, I visited Towanda, and was there informed, that bituminous coal of the best quality, and in great quantity, had been discovered in the mountain valleys south-west from that place. In September and October, of the same year, I travelled over Allegany county, in Maryland, and found bituminous coal of very superior quality, in common use in the vicinity of the Allegany ridge. It is first seen near Frostburg, eleven miles from Cumberland; it, however, abounds in the vicinity. Some of the strata I examined, and found them about an average of five feet, and in secondary formation.

respecting the Chesnut Ridge, and the Laurel Hill; that, though not very elevated, they nevertheless exist as well defined mountain chains. The latter is a very extended branch of the system, reaching from the northern part of Pennsylvania into Alabama. This chain traverses Virginia by various names; separates Virginia from Kentucky as Cumberland mountain; traverses Tennessee, and penetrates Alabama under the latter term; and interrupted by Tennessee river, it forms the Muscle Shoals, and is imperceptibly merged into the central hills of Alabama. Like many others, this very lengthened chain is delineated defectively in every map of Pennsylvania I have seen. Similar to Chesnut Ridge, Laurel Hill is terminated, on our maps, near the Kiskiminitas, though in reality extending to near the south boundary of New-York.

In addition to the great chains we have been surveying, many of minor importance might be noted; but we have deemed a view of the most striking parts sufficient.

If engrouped into one view, the mountains of Pennsylvania exhibit many very interesting points of observation. The Appalachian system is here upwards of one hundred and fifty miles wide. The particular chains do not average more than three miles, if so much, in breadth.

Before proceeding farther in our review, I may be permitted to observe, that mountains are considered as the superlative of hills. In not only Pennsylvania, but in the Appalachian system generally, hills and mountains are not only specifically, but generically distinct features of nature. If this was not the case, the slope would, in most cases, gradually rise from the mouths to the sources of rivers, and no regular ranges of elevated ground could be found crossing the streams obliquely. According to common opinion, the mountains of the United States form the dividing ridge between the waters of the Atlantic slope, and those of the Mississippi and St. Lawrence basins. So far, however, are the mountains from constituting the separating line of the waters, that the real dividing ridge, if it can be so called, crosses the mountains diagonally.*

The Appalachian system is formed, as we have seen, by a number of collateral chains, lying nearly parallel; each chain is again formed by ridges, which interlocking, or interrupted by rivers, extend generally in a similar direction with the chain to which they particularly appertain. The chains differ materially from each other in elevation and in continuity. In some of the chains, at each side of the system, the parts are

* See the maps.

of very unequal height above their bases, and of tide water. The South-east mountain and Blue Ridge are prominent examples.*

The attendant map, coloured to exhibit the formations geologically, will save much verbal description, and paint to the eye the structure of Pennsylvania. By a reference to the geological map, it will be seen that the rock formations obey neither the mountain system nor river valleys.

In the correct solution of any question arising out of the advance or distribution of population, the determination of the real surface covered with mountains, would afford extremely satisfactory element. As far as my own personal observation, and the present state of our geographical knowledge afford data, I have estimated the extent of mountain base in Pennsylvania; and on the best maps, carefully measuring every chain, the entire length produced, amounts to a small excess above 2250 miles. If the latter sum is, however, taken, and three miles allowed for the mean breadth of the chains, the mountain area will be 6750 square miles, or very nearly one-seventh part of the superficies of the state.

Before examining the formations, the component soils and rocks, we proceed to view the river valleys of Pennsylvania. The state is drained by the Delaware, Susquehanna, Ohio, Potomac, and Genessee rivers, and at the extreme north-west angle by lake Erie.

The respective river basins, or rather the sections included in Pennsylvania, are of very unequal extent. Delaware, Susquehanna, and Ohio, include an immense proportion of the whole state, and subdivide it naturally into the eastern, middle, and western river sections.

The following tables give the respective area of each, and also the smaller sections of Potomac, Genessee, and Erie.

Delaware river drains the counties of

	Square Miles.	Acres.
Berks, - - - - -	950	608,000
Bucks, - - - - -	640	409,600
Chester $\frac{1}{2}$, - - - - -	550	352,000
Delaware, - - - - -	180	115,200
Lebanon $\frac{1}{4}$, - - - - -	40	25,600
Lehigh, - - - - -	360	230,400
Luzerne, - - - - -	180	115,200
Montgomery, - - - - -	450	288,000
<i>Amount carried over,</i>	3350	2,144,000

* See page 12—15.

<i>Amount brought forward,</i>	Square Miles.	Acres.
	3350	2,144,000
Northampton, - - - -	1100	704,000
Philadelphia, - - - -	120	76,800
Pike, - - - -	850	544,000
Schuylkill $\frac{1}{2}$, - - - -	500	320,000
Wayne, _j - - - -	790	505,600
	<hr/> 6710	<hr/> 4,294,400

Susquehanna drains the counties of

Adams $\frac{3}{4}$, - - - -	350	224,000
Bedford $\frac{3}{4}$, - - - -	1000	640,000
Bradford, - - - -	1260	806,400
Cambria $\frac{3}{4}$, - - - -	330	211,200
Centre, - - - -	1460	934,400
Chester $\frac{1}{2}$, - - - -	180	111,200
Clearfield $\frac{9}{16}$, - - - -	1450	928,000
Columbia, - - - -	630	403,200
Cumberland, - - - -	630	403,200
Dauphin, - - - -	550	352,000
Franklin $\frac{1}{2}$, - - - -	280	179,200
Huntingdon, - - - -	1280	819,200
Indiana $\frac{1}{16}$, - - - -	80	51,200
Lebanon $\frac{1}{4}$, - - - -	280	179,200
Luzerne $\frac{9}{16}$, - - - -	1920	1,228,800
Lycoming, - - - -	2510	1,606,400
M'Kean $\frac{1}{4}$, - - - -	380	243,200
Mifflin, - - - -	910	582,400
Northumberland, - - - -	500	320,000
Perry, - - - -	550	352,000
Potter $\frac{1}{2}$, - - - -	750	480,000
Schuylkill $\frac{3}{4}$, - - - -	300	192,000
Susquehanna, - - - -	910	582,400
Tioga, - - - -	1180	755,200
Union, - - - -	600	384,000
York, - - - -	1120	716,800
	<hr/> 21,390	<hr/> 13,685,600

Gennssee drains $\frac{1}{2}$ of Potter, -	150	96,000
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Potomac drains

Adams $\frac{3}{4}$, - - - -	220	140,800
Bedford $\frac{3}{4}$, - - - -	630	403,200
Franklin $\frac{3}{4}$, - - - -	560	358,400
Somerset $\frac{1}{4}$, - - - -	180	115,200
	<hr/> 1590	<hr/> 1,017,600

	Square Miles.	Acres.
Lake Erie drains $\frac{1}{2}$ of Erie county,	380	243,200

Ohio river drains the counties of

Alleghany, - - - - -	810	518,400
Armstrong, - - - - -	1010	646,400
Beaver, - - - - -	690	441,600
Butler, - - - - -	850	544,000
Cambria $\frac{3}{4}$, - - - - -	800	512,000
Clearfield $\frac{1}{16}$, - - - - -	160	102,400
Crawford, - - - - -	1040	665,600
Erie $\frac{1}{2}$, - - - - -	380	243,200
Fayette, - - - - -	900	576,000
Greene, - - - - -	640	409,600
Indiana $\frac{3}{16}$, - - - - -	680	435,200
Jefferson, - - - - -	1280	819,200
M ^c Kean $\frac{3}{4}$, - - - - -	1140	729,600
Mercer, - - - - -	880	563,200
Potter $\frac{1}{2}$, - - - - -	520	204,800
Somerset $\frac{2}{3}$, - - - - -	800	512,000
Venango, - - - - -	1200	768,000
Warren, - - - - -	900	576,000
Washington, - - - - -	900	576,000
Westmoreland, - - - - -	1180	755,200
	<hr/> 16,760	<hr/> 10,598,400

SUMMARY.

Delaware drains, - - - - -	6,710	4,294,400
Susquehanna, - - - - -	21,390	13,685,600
Genessee, - - - - -	150	96,000
Potomac, - - - - -	1,590	1,017,600
Ohio, - - - - -	16,760	10,598,400
Lake Erie,* - - - - -	380	243,200
	<hr/> 46,980	<hr/> 29,935,200

Without reference to the comparatively minor river sections of Potomac, Genessee, and Erie, the surface of Pennsylvania is subdivided into three river valleys, Delaware, Susquehanna,

* This aggregate still falls short of the real area of Pennsylvania, though considerable allowance is made for the superficies of the southern and central irregular counties. The estimates are made in round numbers, therefore the fractions do not, in many cases, exactly agree with each other.

and Ohio. The respective area is rendered sensible to the eye by the maps prefixed to this number.

The range of the rivers of Pennsylvania is one of the most interesting subjects in all physical geography. It may be assumed as a general principle, that the mountain streams particularly, either flow north-east or south-west, along the mountain valleys, or directly at right angles to that course, through the mountain chains. The conformity of the river courses to that of the mountains, is in a striking manner obvious in the Delaware and Susquehanna.

The Delaware rises by two branches in the western spurs of the Catsbergs. The Cookquago to the north-west, and the Popachton to the south-east, flow from their sources south-west, about fifty miles, draining Delaware county in New-York. Reaching within about five miles from the north-east angle of Pennsylvania, the Cookquago turns to south-east, and continuing that course five or six miles, receives the Popachton. The united streams maintain a south-east course, fifty miles, to the mouth of the Nevisink, and northern extremity of New-Jersey. The Delaware here touches, and washes the north-west foot of the Kittatinny chain, along which it turns to the south-west, thirty-five miles, to the mouth of Broadhead's creek, from Pike and Northampton counties. Winding to the south, the Delaware, below the entrance of Broadhead's creek, breaks through the Kittatinny, and enters the fine valley between that chain and the Blue Ridge. At the north-west base of the latter, at Easton, the river again forms a mountain pass, and five miles farther down, another through the South-east mountain. At the south-east base of the latter chain, this river once more assumes a south-east course after having meandered through the Kittatinny valley about thirty miles.

At Trenton, thirty-five miles below the South-east mountain, the Delaware passes the primitive ledge, and meets the tide; and five miles below, near Bristol and Bordentown, again turns to south-west. Passing along or near the primitive rock, this now widening stream continues about forty miles, receiving near Philadelphia, the Schuylkill from the north-west. Forming its last great bend, five or six miles below Newcastle, the bay of Delaware opens into the Atlantic ocean in a south-east direction.

The entire length of the Delaware is, by comparative courses, from the Catsbergs to the Atlantic ocean, three hundred and ten miles, not quite one half being tide water. Though rolling over numerous rapids, no cataracts, in the proper meaning of the term, interrupt the navigation of the Delaware,

which at times of moderately high water, reach, by both constituent branches, into New-York. The general course is, with a trifling deviation, to the west, south, and north; the sources of the Cookquago and Popachton, being very nearly in similar longitude with Cape May. When viewed on a map, the various sections of this river have the appearance of having been arranged artificially: the two lower bends strongly proving the geological influence of the mountain system.* Though but little elevated above the ordinary surface of the country through which it passes, the great primitive ledge pursues a direction remarkably similar to that of the Appalachian chains. From Bristol to its terminating bend below New-castle, the Delaware river flows down the south-east margin of the primitive, separating the sandy shores of New-Jersey from the micaceous soil of Pennsylvania and Delaware.

Like every other primary stream of the Atlantic slope, the navigation of the Delaware is less facile than in the early stage of settlement,† but admits vessels of considerable draft to the foot of its lowest rapid; and ships of the largest class to near the mouth of the Schuylkill.

Similar to the Susquehanna and the Potomac, the Delaware receives nearly all its large tributary streams from the north-west. Of these confluents only two, the Lehigh and Schuylkill, are of considerable magnitude.

From the position of their valleys as channels of intercommunication, and from the mineral treasures found along their mountain sources, the Schuylkill and Lehigh have already become of great importance. The Lehigh rises by various mountain branches in Northampton, Pike, Wayne, and Luzerne counties; uniting below Stoddartsville, and forming a small but precipitous river current, which pouring first to the south-west, gradually turns south, and south-east passes Mauchchunk village, and winding between mountain masses, finally breaks through the Kittatinny, and continuing to the south-east meets the north-west base of the Blue Ridge at Allentown. Here it turns to the north-east along the base of the latter chain, and passing Bethlehem joins the Delaware at Easton. The Lehigh is truly a mountain torrent; there is

* See page 12.

† No adequate attention, in the United States, has yet been paid to this very serious fact. It is well attested by historical record, that agriculture, by opening the soil to the action of rains and consequent floods, must annually increase the impediments to navigation in tide water rivers. The increment of alluvial deposit, is always first and most sensibly felt, at the point of admixture between the down stream and ocean tide. The means of obviating this evil must, in the lapse of no great time, become a prominent subject of statistical inquiry.

no other stream of equal length in the United States which presents so great difference of level between the points of source and discharge.

In a comparative course, it is about twenty-five miles from Stoddartsville to Mauch Chunk, and the fall in the intermediate distance 845 feet. Ten miles in a direct line below Mauch Chunk, the Lehigh passes the Kittatinny, and falls 245 feet in that short space. From the Lehigh Water Gap, or passage through the Kittatinny, to its junction with the Delaware, it falls 205 feet, in a comparative course of thirty-five miles. The entire fall from Stoddartsville to Easton, 1210 feet; comparative course seventy miles. From the junction of its constituent branches below Stoddartsville to its extreme source, about fifteen or twenty miles, giving an entire comparative length to the Lehigh, of near 100 miles. The fall above Stoddartsville, probably amounts to 500 feet; and if so, this rapid river falls upwards of 1700 feet in 100 miles; and what may be considered in a peculiar manner remarkable, no actual cataract worthy notice, exists in all its course. Above the Water Gap, the bed of the Lehigh lies at the base of steep or precipitous mountains, rising in most places from the margin of the stream. The scenery is in a peculiar manner wild, bold, picturesque, and romantic. Below the Kittatinny, the features of nature are less grand along the banks, but still follow, in a rich succession of strongly contrasted and elegant landscape. The varied character of its shores is preserved to its final egress into its recipient at Easton, and at all future time this river will afford an ample reward to the traveller.

The Lehigh is now rendered navigable by dams, and falling locks for some distance above Mauch Chunk.* This very useful and arduous work has been effected by the Lehigh Coal and Navigation Company, under the direction of Messrs. White and Hazard, the superintending engineers. The discovery of Anthracite coal, made in the vicinity, led to the improvement of the river navigation. By reference to the maps, it will be seen, that the coal strata between the Lehigh and Schuylkill, are in the transition or inclined region of rocks. It may be observed that rivers flowing over transition rocks, are, in most instances, very much impeded by rapids, but very seldom have perpendicular falls. Real cataracts almost uniformly exist in secondary formation.

The Schuylkill rises in and drains about the five-eighths of Schuylkill county. Formed by two branches, which unite im-

* A detailed description of this navigation will be given in a future number of the Repository.

mediately above and pass through the Kittatinny mountain seven miles south-east from Orwicksburg. Below the Water Gap, or passage through the Kittatinny, the Schuylkill turns to nearly south, in which direction it continues through the Blue Ridge at Reading, after having received Maiden creek from the north-east, and the Tulpehocken above that town, from the north-west. Below the Blue Ridge this river again winds to south-east, passes the South-east mountain above Pottstown, and receiving the Perkiomen and some lesser creeks from the north, crosses the primitive ledge above, and joins the Delaware below Philadelphia.

The entire length of the Schuylkill, by comparative courses, is about one hundred miles, twenty above and eighty below the Kittatinny mountains.

A strong resemblance is perceivable between the Schuylkill and the Lehigh, though the scenery along the former is less rugged than that which skirts the latter stream. Flowing from the same mountain valley, the soil and mineral productions are in a great measure similar on the two rivers. The subject will be more amply noticed in a subsequent part of the Repository; but I may here observe, that in the distribution of the Anthracite coal, very great diversity exists between the situation of the mass on the Mauch Chunk mountain, and any other with which I have been made acquainted, in either the basins of Delaware or Susquehanna. That on the Mauch Chunk lies in an immense body on the ridge of the mountain, with little of any inclination to the horizon, and with a very thin stratum of incumbent earth. The mines on the Schuylkill, and those near Wilkes-Barré, dip like the other accompanying incumbent and decumbent strata.

The Schuylkill is now navigable by canals and locks to Reading, and will soon be so to the coal mines, ten miles above Orwicksburg. The Union Canal Company is employed also in completing a connection between the Susquehanna and Schuylkill, by the Swatara and Tulpehocken valleys.

✓ The Susquehanna, in many other respects remarkable, is peculiarly so as rising on the central secondary formation, and piercing the mountains obliquely, and reaching the Atlantic tides, after having passed all the intermediate formations. This immense stream enters Pennsylvania by two great branches, the Susquehanna proper, and the Chemung or Tioga. I have often had occasion to observe, that every river had its own individual physiognomy. This observation applies, in a very striking manner, to the Susquehanna. The general bends of the latter stream conform, in an astonishing degree, to those of the Delaware; and a comparative view on a map must con-

✓

vince every mind that some general structure of the country through which they flow, must have modified and directed the respective courses of those two rivers. Below their junction at Tioga Point, the united streams of the Susquehanna and Chemung flow a little south of east, fifteen miles, to the foot of the Appalachian system, below Towanda. Leaving the secondary, and entering on the transition, the now considerable stream turns to south-east, and following that general course fifty miles, breaks through several chains, and finally at the mouth of the Lackawannock, nine miles above Wilkes-Barré, enters the Wyoming valley, and turns to south-west; continuing the latter course near seventy miles down the mountain valleys to Northumberland and Sunbury, and to the mouth of the West branch. In the entire distance from Tioga Point to Sunbury, the Susquehanna receives no tributary stream of forty miles direct length; the Towanda, Wyalusing, Tunkhannock, Lackawannock, Fishing Creek, and some lesser branches, are mere mountain creeks, rapid, but not more than from twenty-five to fifty-five miles general course.

Including all its higher north-east branches, the Susquehanna is peculiar in the structure of its valleys. Wide bottoms of two, and sometimes three stages, spread along the convex side of the bends, whilst mountains of more or less elevation, rise on both sides of these spreading vales. Exuberant fertility is, at a single step, followed by rocky and sterile steeps. The natural timber of the bottoms in a great measure different from that on the mountains. In the former, sugar-maple, black walnut, elm, beech, and others trees indicative of a productive soil abound; on the slopes of the mountains, pine, oak, and chesnut, and above the Lawahannock, hemlock, are the prevalent timber trees. As a navigable stream, the Susquehanna is much less interrupted by rapids or dangerous shoals, than from the tortuous course it pursues through an extensive mountain system could be expected. It is also remarkable, that where the various branches of this river pass the respective chains, rapids seldom, and perpendicular falls, no where exist.

The Western branch is, in all its extent, a river of Pennsylvania. Rising far within the secondary formation, its extreme western source in Indiana, reaches within less than thirty-five miles from the Alleghany river, at Kittanning. Flowing north-east about seventy miles across Clearfield, it receives the Sinnamahoning from the north-west in the south-west angle of Lycoming county. Below its junction with the Sinnamahoning, the West branch continues north-east fifteen miles, and thence to south-east twenty miles, to the mouth of Bald Eagle

creek from Centre county. Below Bald Eagle, the course is a little north of east, thirty-five miles, to Pennsborough, receiving in the intermediate distance, from the north, Pine creek, Lycoming, and Loyalsock. From Pennsborough the course is nearly south, twenty-five miles, to the mouth of the North-east branch, and thirty-five from thence to that of the Juniata. It may be observed that this long southern reach of the Susquehanna has its counterpart in the Delaware. About eight miles below the entrance of Juniata, the Susquehanna, having again assumed a south-eastern course, passes the Kittatinny mountains; and ten miles below that chain, the Blue Ridge. Maintaining the latter course sixty miles below the Blue Ridge, this great river is lost in the tides of Chesapeake bay.*

Juniata, the south-west branch of Susquehanna, rises in and drains the northern part of Bedford county. The sources of the Juniata are in the eastern slopes of the Alleghany chain; and flowing twenty miles nearly east, passes Bedford, and breaking through several mountain chains, turns abruptly to a course a little east of north, forty miles, receives the Frankstown branch below and near the borough of Huntingdon, in Huntingdon county. The general course of Frankstown branch is from the north-west to south-east, and below their junction, the united streams follow that course fifteen miles, breaking through Jack's mountain. Again inflected to north-east, the Juniata leaves Huntingdon and enters Mifflin county, and pursuing that direction near thirty miles, passes Lewistown, and again winding to south-east, breaks through Shade mountain into Tuscarora valley. Crossing that valley, in a course of ten miles, reaches the north-west base of Tuscarora mountain, down which it flows about ten miles, where, near Millerstown, it pierces the latter mountain, and once more turning to south-east, enters on Perry county, over which it flows fifteen miles, where it finally mingles with the Susquehanna.

Like every other branch of the Susquehanna, the Juniata is as remarkable for its rapids as for its exemption from perpendicular falls. Though originating in, and having its entire course amongst craggy mountains, it is navigable, at high water, to near Bedford. In speculative opinions on the means,

* It was an observation of the late Mr. Latrobe, that Chesapeake Bay itself was only the continuation of the Susquehanna, below the head of tide water. If this geographical, or rather hydrographical principle is correct, then the Patapsco, Patuxent, Potomac, Rappahannock, York, and James Rivers, are confluent of the Susquehanna, which, with such extension, would constitute the largest river of the world in proportion to length of course.

and most suitable route, to form a water communication between the Chesapeake basin and the valley of Ohio, the Juniata has been conspicuously held in view. In such investigations, relative height above the ocean is a most important element. The close of this article will shew the general difference of level between the sources and mouths of the Pennsylvania rivers, as far as they have been ascertained with any adequate precision.

Potomac, though drawing but a very trivial part of its waters from Pennsylvania, demands attention in this sketch, from the probability that its channel may be chosen by the general government, as a canal route between the Atlantic slope and Ohio valley. The Potomac is a real mountain river, deriving its sources from nearly the highest table land of the Appalachian system. The extreme western fountain of the north branch of Potomac, is in the south-east slopes of the Allegany or Backbone chain, N. Lat. $39^{\circ} 10'$. Flowing north-east along the foot of Allegany to the mouth of Savage creek, or rather river, thirty-five miles, the Potomac turns to south-east through Will's mountain into Cumberland valley, which it crosses about ten miles, where it is again turned to north-east by another lateral chain. Continuing north-east twenty miles, reaches the town of Cumberland. At the latter place occurs another abrupt bend, through a mountain pass, into the South Branch valley. The latter stream is of much greater magnitude than that of the Potomac proper. Rising by numerous creeks in Pendleton county, Virginia, as far south as N. Lat. $38^{\circ} 20'$. In a general comparative course of one hundred miles, the South branch becomes a fine navigable river. Below the mouth of the South branch, the Potomac gradually re-assumes a north-east direction, which it preserves, about thirty miles, to Hancock's town, where it turns to south-east, and pierces Sideling hill chain, and in a few miles lower down the Kittatinny, entering the Great Conococheague valley. From Hancock's town to the entrance of Conococheague creek, the course of the Potomac is a little south of east twenty-five miles. Below the latter creek, the river inclines to south-east by south, twenty-five miles, to the north-west base of the Blue Ridge, and mouth of Shenandoah.

Rising in, and draining Augusta county, in Virginia, the South branch of Shenandoah rises below N. Lat. 38° . Augmented by innumerable mountain streams, it flows from Augusta, over Rockingham and Shenandoah, into Frederick county, where joined by the North branch, and continuing a general course of north-east, over Frederick and Jefferson counties, unites with the Potomac at Harper's ferry, after a

comparative course of about one hundred and fifty miles. At their junction, the volume of the Shenandoah yields very little in magnitude to that of the Potomac. The united waters immediately break through the Blue Ridge, and continuing South-east about fifty miles, mingles with the Chesapeake tides at Georgetown, within the District of Columbia. The general comparative course of the Potomac above tide water, is, by the south branch, about two hundred, by the Potomac proper, one hundred and fifty, and by the Shenandoah one hundred and sixty miles.*

Like those of the Delaware and Susquehanna, the great confluent of the Potomac are from the right bank. Savage river and Will's creek, from Allegany; Conococheague, from Washington; and Monocacy from Frederick county in Maryland, are comparatively trivial, when compared with the branches of Potomac derived from Virginia.

At Cumberland, Potomac reaches within five, and at Hancock's town, within two miles of the south boundary of Pennsylvania. The extent of the Potomac valley included, in that state, is given in the table, page 22.

Leaving the Atlantic slope, and viewing a general map of the United States, we at once perceive a great river valley, stretching from Pocahontas county, Virginia, over western Pennsylvania, into New-York. This valley extends nearly due north and south, at an angle of about forty-five degrees, to the range of the Appalachian mountains, and reaches from N. Lat. $38^{\circ} 30'$, to N. Lat. $42^{\circ} 20'$. The extremes giving source to two rivers; that of the north to the Allegany, and that of the south to the Monongahela. These two streams flowing directly towards each other, meet at Pittsburg, very nearly at the middle point of the valley. Their united water taking the name of Ohio, turns to the west, or rather north-west, as far as the entrance of Big Beaver river. With a very partial exception, western Pennsylvania is drained by the Allegany and Monongahela.

Though the lower part of its course is but little inclined west of south, the general bends of the Allegany conform, in a very striking manner, to the structure of the Delaware, Susquehanna, and Potomac, and gives another conclusive proof of the extension of the Appalachian system far beyond where it protrudes elevated mountain chains. Having its source in Potter county, in Pennsylvania, and interlocking with the head branches of the Susquehanna and Genessee, the Allegany

* These courses are comparative, and fall, in general result, nearly one-half short of that by the particular bends.

flows north-west about fifty miles, into Cataraugus county, New-York. Abruptly turning to south-west, and preserving that general course nearly one hundred miles, and receiving French creek from the north-west, it thence bends to south-east forty miles, to the mouth of the Mahoning. About the middle of the latter course, Clarion river and Red Bank creek, two large branches, enter from the north-east. From Mahoning to Pittsburg, the general course is again south-west about fifty miles.

Kiskiminitas, a very considerable accessory stream of the Allegany river, rises in the mountain valley between the Alleghany and Chesnut Ridge chains, and flowing north-west, breaks through Chesnut Ridge and Laurel Hill, and after a comparative course of seventy-five miles, unites with the Alleghany, near midway between the mouth of Mahoning and Pittsburg.

Mahoning and Red Bank creeks, have their sources in Chesnut Ridge, and with each, a course of about thirty-five miles; the former north-west, and the latter south-west, join the Alleghany in Armstrong county. Clarion river* has interlocking sources with those of Sinnemahoning and the Alleghany river. The Red Bank rises in the same region with Clarion river and Sinnemahoning; and Mahoning with Red Bank and the west branch of Susquehanna.

In point of surface drained, Kiskiminitas is the largest confluent of the Alleghany, and having interlocking sources with those of the west branch of Susquehanna, Juniata, and Youghiogany, seems to offer to the eye the most facile link of intercommunication between the valleys of the Ohio and Susquehanna, north of the Potomac.

Alleghany river receives but two confluent streams from the right; those are French and Conewango creeks. The latter rises in Chataque county, New-York, by three branches, the Chataque, Casadaga, and Conewango. These unite in New-York, and forming a navigable stream, assumes a south course, enters Warren county, Pennsylvania, and falls into Alleghany at the town of Warren, after a comparative course of forty miles.

French creek has its source in the extreme south-west angle of New-York, and increased by numerous branches from Erie and Crawford counties, Pennsylvania, forms a navigable river at Meadville. Flowing to the south-east from Mead-

* Toby's creek, as formerly designated, I am informed, is known in the county it drains, by the name of Clarion river. The change is in every respect an improvement, as a stream of more than seventy miles comparative course, cannot with any propriety be called a creek.

ville, twenty-five miles, French creek is lost in Alleghany river, at Franklin, in Venango county. The entire comparative course of French creek is about eighty miles.

There is no other feature in the hydrography of the United States more remarkable than the country from which Chataouque and French creek have their sources. The extreme north-west waters of the former, flow from within three, and those of the latter from within five miles, of the margin of Lake Erie. This very important fact will be more particularly noticed, and its bearing on navigable communication shewn, in the sequel.

Taken as in a state of nature, the Alleghany and its branches are the recipients of the northern part of the great western basin of Pennsylvania, and are but little impeded by falls, though rapid as to current, from the declivity of their plane of motion.

The Monongahela, formed by two branches, the Monongahela proper, and Cheat river, rising in Pocahontas, Randolph, Harrison, Lewis, Monongahela, and Preston counties, of Virginia, unite two miles within the south boundary of Pennsylvania. The general length, above Pennsylvania, about one hundred miles, in nearly a north course. Preserving the latter direction, sixty miles in Pennsylvania, and receiving the Youghiogany from the south-east, the Monongahela mingles with the Alleghany at Pittsburg, and form the Ohio.

The various branches of the Monongahela, which derive their sources from the western chains of the Appalachian system, similar to the Potomac, claim a more than ordinary share of attention, as presenting the connecting links of a proposed line of canal improvement. Cheat river flows from the north-western slope of Alleghany mountain, and draining the eastern part of Randolph county, passes Chesnut Ridge, enters Preston county, and there a navigable stream continues north, to within five miles from the south boundary of Pennsylvania. Turning to the west through Laurel Hill, and thence north-west, crosses the south line of Pennsylvania, and unites with Monongahela.

Youghiogany rises in the extreme south-western angle of Maryland, between the sources of Potomac and Cheat rivers. Pursuing a northern course over Maryland into Pennsylvania, and augmented by Castleman's river, its northern branch, the Youghiogany, turns to north-west, and breaking through Chesnut Ridge and Laurel Hill, joins the Monongahela at M'Keesport, eighteen miles above Pittsburg. This is a fine mountain stream, which in all seasons, except in periods of long drought, contains more than sufficient water for a supply of the most

capacious canal; general comparative course, about one hundred miles; thirty in Maryland, and seventy in Pennsylvania. The Youghiogany heads with the Cheat branch of Monongahela, with the north branch of Potomac, and by Castleman's river, with Juniata and Kiskiminitas. Should the Chesapeake and Ohio Canal be seriously undertaken, the channel of the Youghiogany, from relative position, presents the most direct route to unite the waters of the Potomac with those of Monongahela.*

At Pittsburg, the Ohio is formed, as we have seen, by the confluent waters of Allegany and Monongahela. The former is the principal stream, flowing with a more rapid current than its rival. From Pittsburg to Beaver river, the Ohio pursues a north-west course twenty-five miles; thence winding to the west twenty miles, in which it leaves Pennsylvania, and enters Ohio. Within the latter state, the Ohio river inflects to a course a little west of south, seventy miles, reaching in that direction, nearly the same latitude with the south boundary of Pennsylvania. The peculiar courses of the Monongahela and Ohio, forms one of the most remarkable intermediate peninsulas presented by the topography of the United States. The two streams flow in very nearly opposite directions; the intervening space from thirty-five to forty miles wide, and with a mean length of sixty miles. Though hilly rather than mountainous, this peninsula is elevated to from 600 to 1000 feet in the dividing line of its waters, above the adjacent rivers. A number of creeks, none of which can exceed a comparative course of twenty-five miles, are poured from the interior spine into the respective recipients. The dividing ridge, is evidently continued north of Ohio river, broken by that stream a few miles below Pittsburg. The northern extension is continued, inflecting between the western sources of Allegany, and the eastern sources of Big Beaver river, and is finally lost on the south-eastern shores of Lake Erie; the southern, stretching between the confluents of Ohio and Monongahela rivers, mingles with the Appalachian chains, between the sources of the latter and Little Kenhawa. This ridge is the western buttress of the upper basin of Ohio, and affords a very striking example of the real difference between a chain of hills and one of mountains.

The descent from the rivers to the Western ridge of Pennsylvania is so gradual, and the hills scattered in such promiscuous winding, through the sources of the streams, that an ascent of six or seven hundred feet, in a few miles, is imper-

* See Section III.

ceptible; on the contrary, the mountain chains extend in regular lines uninfluenced, in their direction, by the water courses, and are abrupt and steep in their declivities. The mountains seem to have existed previous to the rivers, whilst the hills appear to have been formed by the abrasion of water.

Big Beaver, the first river which enters Ohio, pours its current from the north, and falls into its recipient, twenty-five miles below the confluence of the Alleghany and Monongahela. Big Beaver is formed by the Mahoning, Shenango, Neshanock, and Conequenessing creeks. The Shenango rises in Ashtabula county of Ohio, and Crawford of Pennsylvania, within twelve miles from the south-east shore of Lake Erie, interlocking sources with those of Grand river, Coneaut, and French creek, and pursuing a nearly south course over Mercer, receives the Conequenessing from the north-east, and entering Beaver county, unites with the Mahoning, and forms Big Beaver.

The Mahoning is in reality the main branch; rising in Columbiana, Stark, Trumbull, and Portage counties, Ohio; its course is first nearly north, thirty miles, to near Warren in Trumbull. Winding to south-east, it pursues that course thirty-five miles, entering Pennsylvania in the south-west angle of Mercer, and joining the Shenango at N. Lat. 41°, about two miles within Beaver county. Below the junction of the Mahoning* and Shenango, Big Beaver flows a little east of south, twenty miles, into Ohio river. Conequenessing is the eastern constituent stream of Beaver, draining the peninsula between the Alleghany, Ohio, Big Beaver, and Shenango rivers.

The valley of Big Beaver is nearly circular, and about seventy miles diameter; area 3850 square miles. It is worthy of remark, that the general courses are nearly on a direct north-west line; of the Youghiogany, below the mouth of Castleman's river, Monongahela and Ohio, from the mouth of Youghiogany to that of Big Beaver; and the latter and Mahoning, to about three miles above Warren. This range of navigable water is upwards of one hundred and thirty miles direct, and from one hundred and eighty to two hundred miles, following the sinuosities of the streams.

The sources of the Mahoning interlock with those of the Tascarawas branch of Muskingum, and Cayahoga, and Grand river, of Lake Erie.†

We have thus completed a general delineation of the moun-

* The confused nomenclature of the rivers and mountains of the United States, strike the geographer at every step. In the inclosed sketch, we have found two rivers Mahoning, within fifty miles of each other. Such repetitions are frequent, and produce an oppressive perplexity.

† See Section III.

tain chains and river valleys of Pennsylvania, and extended our sketches sufficiently, to give the connections with the adjacent states. This is only to draft the skeleton of the natural geography of the region under review. It remains to examine the component rocks of the mountain chains; the formation of the mountains and valleys; the relative slope and height of the mountains and valleys; and the facilities afforded to natural and artificial transportation by land and water. The geographical section of this number can be only considered as a preface, or introduction to the much more important inquiry which is to follow in the numbers immediately subsequent to the present.

SECTION II.

HISTORY OF PENNSYLVANIA.

CIRCUMSTANCES of a peculiar nature and primary interest, are interwoven, not only into the colonial history of Pennsylvania, but also into that of the parent state, which produced the existence of such a colony. As a colony, it was established under the influence of, and direct emigration of men instigated by motives, in many respects essentially different from those which led to any other English, or indeed any other European colony in America. The primeval character of its founders gave colour and texture to its institutions, and to the social features of society. Pennsylvania continues to exhibit much of the pristine materials of its structure, admixed with other substances more or less discordant. To catch those intermingling shades, and to delineate their varieties with truth of design and justice of colouring, is the duty of the historian. I enter upon the execution of the task, with that undefinable anxiety which all men must feel who engage to perform an enterprise of such magnitude.

Long habituated to consider a competent knowledge of our colonial, as indispensable to a due comprehension of our independent history, I first open that of Pennsylvania, by briefly developing the causes, and tracing the events, which preceded and produced, her political situation and importance, at the epoch of that revolution which eventuated in creating the United States.

It is also a due consideration of the dependence of the individual colonial history of Pennsylvania upon that of her

more ancient sister colonies, that has induced me to preface the latter by a brief sketch of the former.

The English North American colonies were founded upon very dissonant principles, and were of three species :

First, Royal grants, ruled immediately by governors, whose authority emanated from the crown, and who personally represented the king.

Second, Royal proprietary grants, governed in the name of the proprietary.

Third, Voluntary associations of individuals, who, from the outset of their establishment, were ruled by governors of their own choice, and who never submitted to royal negative, either direct or indirect.

The colonies founded under royal grants were, in many respects, proconsular ; for although, in every instance, sooner or later, the colony assumed self-legislation, the royal representative retained the power of absolute veto.

Of the proprietary royal grants, Maryland and Pennsylvania, were very prominent examples. Indeed, in the latter, the extremely complex provisions of its charter, laid the solid foundation for that series of perpetually recurring disputes between the proprietary governors and the provincial assemblies, which distracted the government during the period of its existence as a colony. The vague expressions, also, of both charters, involved the proprietaries, and people of Pennsylvania and Maryland, in an embittered contest respecting their mutual limits, which endured upwards of seventy years, and gave birth to rancorous feelings, which have not yet entirely subsided. The governor's power of inqualified negative, was more frequently used ; particularly in money bills, in Pennsylvania, than in any other English North American colony ; and as will be seen in the sequel, in a great measure nullified the best provisions of the charter. In all the colonies, where it could be exercised, the veto of the representatives of the crown, contributed more than all other causes, to create and foster amongst the colonists, an inveterate spirit of suspicion and resistance. The English North American colonies, although in some respects proconsular, were not, however, provinces formed by assumption or conquest. The original adventurers, and more especially, those who removed to America under the authority of a charter, brought with them all the rights of Englishmen. The value of those immunities were known and cherished. The crown of England, and its minions in America, seem to have been constantly instigated by a spirit of encroachment. Thus, exertions of power on one hand, and stern resistance to its advances on the other,

created the germ of revolution, at the earliest epoch of English settlement on the North American coast. Deriving from the parent country, their language, laws, religious creeds, and their literature, the early settlers in America, and their posterity, were naturally inclined to love and venerate their fellow subjects in Europe, and to view their common government as the highest effort of human wisdom ; but these conciliatory sentiments were stifled, by perpetually recurring acts of aggression on the part of those sent to govern the colonies.

“Courage, wisdom, integrity, and honour, are not to be measured by the sphere assigned them to act in, but by the trials they undergo, and the vouchers they furnish : and if so manifested, need neither robes or titles to set them off”*

Upon these principles, no department of civil history demands from mankind such profound attention as the Anglo-American colonial. In these early establishments, the ancient Saxon free institutions were implanted, guarded, and flourished, whilst fading or expiring in Europe. It affords, to a well regulated mind, a cheerful retrospect to scan, the progress of new formed societies, amongst the members of whom the most exalted principles of ethics, jurisprudence, and legislation, were not alone preserved, but received a more solid sanction in the hearts of men from contrast, with their retrogradation in their pristine seats.

With such general views of our subject, we enter on a succinct survey of those English colonies which were planted previous to the date of the charter of Pennsylvania.

When America was first discovered by Europeans, the people of that part of the earth, and their rulers, seem to have, with one accord, considered the newly found regions the property of the first who could disembark on its shores. In a struggle for division of so rich a prize, Spain, Portugal, England, and France, were the most conspicuous competitors. Expeditions were sent out under the authority of each of these governments. Henry VII. then king of England, sent to America, in May 1497, John Cabot, who, with his son Sebastian, discovered, and coasted North America, from Newfoundland to the point of Florida. The Cabots were the first individuals recorded in history, who, under the authority of any European government, visited the south-east coasts of North America. There still, however, exists strong evidence, that, as simple fishermen, the Basques, or Bretons, from the north-west part of France, had visited the coasts of Green-

* Benjamin Franklin's Historical Review of the Constitution and Government of Pennsylvania, p. 5.

land and adjacent parts, before any discoveries were made of the same places, by national authority. During the long period which intervened, from the voyages of the Cabots to the actual colonization by both, the English and French nations seem to have preserved a nearly equal pace in the career of discovery.

An examination of the intermediate history of England will afford solid reasons why the government and people of that kingdom did not sooner avail themselves of their claims in North America. Under the Tudors, neither the population or resources of England, were adequate to distant colonization, or even commercial exertion; and to physical weakness were superadded political and religious contention.

The immense treasures in gold and silver procured from America, by the Spaniards, also tended to retard the northern nations of Europe from forming establishments on the opposing part of the newly discovered continent. Every nation considered America as a seat of mines, and when unable to procure the precious metals, disregarded every other advantage. Although slighted nationally, North America attracted the individual attention of many Englishmen, in the early part of the sixteenth century. In 1502, Hugh Elliott and Thomas Ashurst, merchants of Bristol, with some other associates, obtained letters patent from Henry VII, with the avowed intention of colonizing the newly discovered regions. The original of this patent in Latin, is preserved in Hazard's collections. It was the first English governmental grant respecting any part of America; but fell useless, no ostensive steps being ever taken to carry its provisions into effect.*

The French were more attentive to North America, than were the English at this early period; and the former, much sooner than the latter, perceived the true source of wealth offered, by the then, very imperfectly known wilds of the recently discovered continent. In 1504, the Breton and Norman fishermen, had a regular trade and establishments on Newfoundland, which at that time included the whole coast from Labrador to Florida.† The Bretons and Normans, how-

* The actual want of population at that time, in all Europe, but more particularly in the northern parts, opposed an insuperable barrier to colonization. In 1500, it is rendered probable, from concurrent circumstances, that the English crown did not include, under its subjection, three millions of people. Nautical skill and commercial enterprise were also still more contracted, than were the number of inhabitants. The discoverers of North America, under English authority, were Italians; no English seaman of that age appears to have been competent to the execution of such an enterprise.

† When the Cabots discovered North America, they gave to the parts they visited, the name of Newfoundland, which it retained until superseded by

ever, only visited the north-east parts, along the coast of the island of Newfoundland and vicinity.

John Denys, a native of Rouen, sailed, in 1506, from Honfleur to the Gulf of Newfoundland, and on his return to France, drew a map of that inland sea, its islands, and adjacent shores.

Denys was followed, in 1508, by Thomas Aubert, from Dieppe. The latter was the discoverer of the St. Lawrence river, and the country now called Lower Canada. On his return to Europe, Aubert carried with him some of the native savages.

The Baron of St. Lery, in 1524, made some abortive attempts at colonization in North America. The failure of St. Lery's design, and many other adverse causes, gave a check to French enterprize, and prevented actual colonization on the part of that nation in New France, for upwards of eighty years afterwards. Though without settlements by land, nevertheless the French fisheries flourished, and the knowledge of the country by that people, became annually more accurate.

The events of a voyage made by a Florentine, John Verrezzana, in the service of Francis I. king of France, are very imperfectly known. From the scanty records on the subject, it appears, that in 1524, Verrezzana reached the south-east coast of North America, and visited its shores from Florida to Nova Scotia. This discoverer was lost, and with him, in in great part, the notes of his operations.

Though suspended in their efforts to either colonize or pursue their researches in America, the views of the French were constantly directed towards this continent. In 1534, Philip Chabot, admiral of France, represented so strongly to the king, the multiplied advantages which Spain was then deriving from her colonies, that James Cartier of St. Maloes, by royal commission, sailed from that port, April 20th, on a voyage of discovery, with two small ships and one hundred and twenty men. In his first voyage, Cartier sailed round the

that of Virginia, imposed by Queen Elizabeth in 1584. At a subsequent period to the discoveries of the Cabots, the Spaniards discovered the south-west sections of the same coast, and named it Florida. Newfoundland and Florida, therefore included all the coast of North America between the mouths of the Mississippi and St. Lawrence. The extremes on the Atlantic ocean, still retain their original appellations, whilst the intermediate space has been parcelled, and variously designated.

It is a real subject of regret, that either Virginia or Florida, had not prevailed, and been preserved over the whole Atlantic coast now in the United States. They are both fine sonorous names, and certainly preferable, as general terms, to the awkward expression United States. Either of the former would have been distinctive; the latter applies vaguely, to any combination of states into one general confederacy, and always demands circumlocution, to render its particular application definite.

island of Newfoundland, discovered and named the bay des Chaleurs, on the continent, and having afterwards reached N. Lat. 51°, on the Labrador coast, returned to Europe.

In his second voyage, 1535, Cartier penetrated the St. Lawrence as high as the island of Hochelaga, now Montreal, and having treacherously seized some of the natives, returned with them to France. Though disgraced by his conduct towards the savages of America, Cartier appears to have been the first individual from the north-west of Europe, who conceived an idea of the true wealth to be derived from the regions he had explored. He represented, in his report to the king, the great advantages which were offered by the fur trade alone; however, not having gold and silver mines in his list, no notice was taken of his representations.

Nearly forty years had elapsed, from the discoveries made by the Cabots, before any serious attempt was made by the English nation to avail itself of the claim. In 1536, a gentleman of London, at his own risk, though countenanced by the king, Henry VIII., undertook a voyage to America. This adventurer, by the name of Hore, was accompanied by one hundred and twenty persons, of whom twenty-five or thirty were men of education and character. Hore's expedition was, in a peculiar manner, unfortunate. After having visited Cape Breton and some other places in the gulf of St. Lawrence, the party were reduced to the utmost extremity of want and wretchedness; many were literally starved. Falling in with a French fishing vessel, they seized her, and took from her as much provision as enabled the survivors to return to Europe. The facts attending this voyage, it has been observed, prove, that the English were then utterly ignorant of the inexhaustible stores of fish to be found in those seas; and that upwards of thirty years after a regular fishery had been established by the French, that the English had not attempted a participation in that rich source of wealth and subsistence. From the sequel it will be seen, that strong reasons concur to support the conclusion, that the voyage of Hore contributed to turn the immediate attention of the English nation to the American seas. In 1548, the English fisheries had become an object of national legislation. In that year, an act of parliament was passed, to prohibit the exaction, from English fishermen and mariners, going in the service of the fishery at Newfoundland, of money, fish, or other reward, by any officer of the admiralty, under any pretext whatever. This was the first act of the English parliament relative to America.*

* Hakluyt, vol. I. p. 531—III. p. 131, 132. Chalmers, vol. I. p. 9. Holmes' Annals, vol. I. p. 94.

Cartier made his third voyage in 1541. Similar to that of England, the French government were inattentive to the value of the recently discovered territories in America; but many respectable individuals of both nations, renewed from time to time, projects of permanent colonization. The third voyage of Cartier was undertaken at the expense of Francis de la Roque, lord of Roberval, a gentleman of Picardy. Roberval was appointed by the king of France, captain-general, and viceroy of Canada, and its dependencies, with full powers. Cartier as deputy captain-general, was sent out by Roberval. The former, on August 23d, 1541, landed on Newfoundland, where he was, by appointment, to meet his principal. Roberval not arriving immediately, Cartier sailed alone to Canada, where he remained near two years, and built a temporary fort near where Quebec now stands. In the mean time, Roberval not arriving in America, Cartier sailed on his return to Europe. Meeting Roberval on the coast of Newfoundland, Cartier disregarded his orders, and continued his voyage. Roberval proceeded to Canada, where he spent the winter of 1542-3, and returned to Europe in the spring of 1543. Francis I. the patron of Roberval, died in 1547, and with him terminated, for upwards of fifty years, any attempt at settlement in North America by the French. Unaided by his government, Roberval, accompanied by his brother, left France, with an intention to proceed to Canada; and was never again heard of.

So many disasters, and the distracted condition of France, under the expiring house of Valois, prevented any effective attention of the nation to Canada, until 1598. In that year, the Marquis de la Roche received from Henry IV. a commission to conquer Canada, and other countries not possessed by any christian prince.

Twenty years before the date of the grant to de la Roche, Sir Humphrey Gilbert had received one of a similar import from Queen Elizabeth. In 1583, after repeated disappointments, Gilbert sailed to the island of Newfoundland, of which he took formal possession. On the 29th of August, his largest vessel, with all its crew, was lost near Cape Race; and on his voyage towards England, this excellent, but ill-fated adventurer was himself, and all his crew, lost on the 9th of September.

The grant to Gilbert was renewed in 1584, on May 25th, in favour of his maternal brother, Sir Walter Raleigh. The grant of 1584, expressly gave authority to Raleigh, to discover and conquer such heathenish and barbarous lands, as are not possessed by any christian prince or people. Under the

authority of Raleigh, Philip Amadas and Arthur Barlow, sailed from England, in order to explore that part of North America called, by the Spaniards, Florida. Passing through the West Indies, Amadas and Barlow having reached the American coast, and examined its bays and rivers, as far north as the mouth of Roanoke, returned to Europe in September 1584. The report of their discoveries was so seductive as to induce the queen to give the name of Virginia to the new acquisition to her dominions. Virginia continued for upwards of fifty years afterwards, to designate in the English maps, the whole coast from Florida to Labrador, and except the island which still bears that name, superseded the term Newfoundland, imposed by the Cabots.

Richard Grenville as general, and Ralph Lane as governor, were deputed, with seven ships, to proceed to Virginia, by Sir Walter Raleigh, in 1585. The object of this expedition was to plant a colony. The fleet left Plymouth, April 9th, and on the 25th of August reached the mouth of Roanoke, the point of destination. Governor Lane was left there with one hundred and ten persons, to commence settlement, and Grenville returned to England. This was the first attempt to form an actual establishment on the continent of America, made by the English nation; and failed, as in 1586, those of the colonists who had survived, were found by Sir Francis Drake, in so deplorable a situation, as to induce that commander, with the written request of Governor Lane, to re-convey them back to England. Some feeble exertions were subsequently made to restore the establishment, but were abortive. A few days after the departure of Sir Francis Drake, Grenville arrived, with three vessels, at Roanoke, but finding the place abandoned, left fifteen men to retain possession, and sailed to Europe. Early in 1587, Sir Walter Raleigh, anxious to preserve his colony, sent out three vessels and a company of one hundred and fifty people, incorporated under the title of "The county of Raleigh in Virginia," and with John White, constituted as governor. The legislative authority was vested in the governor and twelve assistants.

In one of his voyages, Sir Richard Grenville had discovered the mouth of Chesapeake bay, into which the colony of 1587 was directed to enter; but by some unexplained management of Fernando, their principal naval commander, these devoted people were landed on Roanoke island on the 22d of July. The new colonists found the bones of one man in one of the houses left by Lane's party; deer was found feeding, and melon vines clambering along the walls of the deserted buildings; but the fifteen men left by Grenville were gone

forever ! a melancholy presage of the fate of the present colony.

On the 27th of August, 1587, the governor sailed to England in quest of supplies, but of the wretched people left behind, no trace was ever since known. Thus closed the efforts of Sir Walter Raleigh, as to American colonization. No period in the sixteenth century, could have been more inauspicious to colonization than 1587. The nation was then in war with Spain ; without disciplined troops ; a navy scarcely deserving a name, when contrasted with the formidable fleet of its adversary ; and the Duke of Parma encamped at Dunkirk with an army of fifty thousand veterans. In such a posture of affairs, neither ships, seamen, and above all, experienced naval commanders, could be permitted to engage in any enterprise except national defence. Such men as Howard, earl of Effingham, the two Drakes, Hawkins, Frobisher, and Sir Walter Raleigh, were too precious at home, to have then engaged in any distant expedition. The danger was imminent and pressing, and though absolute conquest, it is probable, could not have crowned the invaders, if their fleets and armies could have reached the English shores ; yet such a shock must have produced lasting national deterioration. The Armada entered the English channel in May, where, battered by storms, and harassed by the light vessels and superior seamanship of the English, was finally defeated, and almost annihilated. When danger is past, nations, like individuals, retain the impression, and continue measures of precaution, and stand ready to oppose a recurrence. This feeling of apprehension fully accounts for the neglect of a far distant colony, eighteen years after the defeat of the Armada.

In France, the house of Valois expired in 1589, by the death of Henry III. who was assassinated at Orleans, and Henry de Bourbon, as Henry IV. succeeded to the throne. A long series of civil and religious tumult was gradually followed by peace and prosperity, in France. As the arts of agriculture and commerce revived, individual enterprise was roused, and Canada again assumed its share of national attention. The American fisheries, about the termination of the 16th century, had commenced to engage the avidity of all western Europe, and after an interval of more than forty years, a French fleet, in 1591, sailed from St. Maloes to Canada. The same year George Drake, an Englishman, sailed up the St. Lawrence, and on his return published an account of his voyage. Drake's representations, produced strong and immediate effects. Sylvester Wyatt, in 1594, found amongst vessels

of different other nations, above fifty English in St. Lawrence.

Under the grant from Henry IV. the Marquis de la Roche sailed from France to Canada, with a colony of convicts. Success corresponded with the moral material of his crews; the plan proved abortive, de la Roche regained his native country to die of a broken heart. M. de Chauvin followed de la Roche in 1600, and was the first individual who imported Canadian furs into France. Chauvin made a second voyage in 1601; and whilst preparing for a third in 1603, died suddenly in France.

The impression on the public mind in England, by the fatal issue of all attempts made under Raleigh's patent, and by the oppressive war with Spain, were imperceptibly effaced, and in 1602, Bartholomew Gosnold had the spirit to attempt, and the honour to produce, a revival of English adventure to America. In the summer of that year Gosnold, in a small vessel and about thirty men, reached the shores of what is now Massachusetts. This active naval officer left England, by consent of Sir Walter Raleigh and his associates, and attempted a colony on Elizabeth islands. The stores and men were landed, but their obvious weakness created discontent and fear; the enterprise was relinquished, and the little colony reembarked. This was the first attempt made by any European nation to obtain settlement in what is now designated New England.

American colonization, at this period, was supported by the able pen of Richard Hackluyt, who entered, with zeal and sound judgment, into the investigation of plans of discovery and settlement. By the active influence of this gentleman and others, and permission of Sir Walter Raleigh, the mayor and aldermen, and some wealthy merchants of Bristol, fitted out a small vessel of fifty tons, the *Speedwell*, and a bark of twenty-six tons, called the *Discoverer*, both commanded by Martin Pring. The object of this voyage was to more effectually than had been hitherto done, discover and examine the northern shores of Virginia.* Pring sailed from Milford Haven, April 10th, 1603, and reached the American coast amongst the islands of Penobscot bay. After ranging the shores to Massachusetts bay, Pring returned to Europe in August.

At the same period in which Pring was employed on the northern section of Virginia, Bartholomew Gilbert visited the

* Now New England. It has been shewn, that in the early periods of English colonization in North America, the name of Virginia was extended indefinitely. See p. 42.

more central parts, in search of the lost colony of Sir Walter Raleigh. Gilbert made the coast between Hudson and Delaware bays, about N. Lat. 40, and rashly going on shore with four of his principal men, were all destroyed by the savages. The fate of their leaders intimidated the surviving crew, who immediately set sail for Europe, without having, in any manner, fulfilled the objects of their voyage.

November 3d, 1603, an event occurred, which places in a strong light, the vagueness of English and French claims in North America. Henry IV. granted to Pierre du Gast sieur du Monts, a patent for that American territory extending from N. Lat. 40° to 46°, with a commission of Lieutenant General of that portion of country; and with power to conquer, colonize, and rule it, and to christianize the natives. The king of France soon after, granted to this officer and his associates, a monopoly of the fur and peltry trade, in the province of Acadia and Gulf of St. Lawrence. In the same year of Du Monts' patent, Samuel Champlain, a native of Brouage in France, sailed up the St. Lawrence river, and made many extensive and important discoveries.

The fisheries around Newfoundland had already become highly valuable; more than two hundred sail of vessels, and above ten thousand men were engaged in that business.

The Sieur du Monts, with Champlain as his pilot, and attended by M. Poutrincourt and a number of other volunteer adventurers of respectability, embarked in two vessels for America. He made first the coast of Nova Scotia, then Acadia, and anchored in Port Rosignol, now Liverpool. Coasting round Cape Sable, the immense bay of Fundy was explored. Poutrincourt fixed his residence at N. Lat. 44° 30', where he, on a fine bay, established a village, to which he gave the name of Port Royal. This place is now the town of Annapolis, and was the first French settlement in North America.

By the joint exertions of Du Monts and Champlain, the rivers, bays, and inlets of both sides of the bay of Fundy, and part of Maine, were discovered during this voyage. Du Monts wintered 1604-5, at the mouth of the Schoodick, now St. Croix, on a small island, at present the north-east limit of the United States, on the Atlantic coast.*

In 1605, the seat of the French colonial government, if it then deserved the title, was fixed at Port Royal. This was two years before the establishment of the English colony at Jamestown, and four before the French settlement at Quebec.

* When the United States and British commissioners settled that part of the boundary, in 1798, the ruins of Du Monts' fort was discovered.

The two nations were each, however, emulous of discovery and colonization. The Earl of Southampton and Lord Arundel, in 1605, fitted out a small vessel to attempt a south-west passage, and gave the command to George Weymouth, who appears, from his operations, to have had, even for that period, a very inaccurate knowledge of the North American coast. He made land in about N. Lat. 41° 30', and coasting thence north, discovered the mouth of a large river, supposed to be the Penobscot, up which he sailed for some distance, and in July set sail on his return to England.

One hundred and nine years had now elapsed since the discoveries first made on the south-east coast of North America, by the Cabots. Though England and France, in the interim, occasionally prosecuted voyages of discovery; and though both nations, in the beginning of the 17th century, pursued their fisheries with activity, neither, if we except the trifling French fort at Port Royal, had a single fortress or factory on shore. We have seen that as early as 1577, that the fisheries employed 150 French vessels, 100 from Spain, 50 from England, and 50 from Portugal. According to Joseph Childs, the Newfoundland fisheries, as those on the North American coast were designated, then employed 10,000 seamen.* The English nation, destined ultimately to become the ruling power, in that part of the North American seas, islands, and continent, now the United States and Canada, were, during the 17th and the early part of the 18th century, much less active than its rivals, particularly France. At, and for a century before the epoch of actual colonization, English enterprise was in great part exhausted in abortive attempts to find a north-west passage to China and India. The rage for discovering mines of the precious metals, was then also at its height. Rational projects of colonization, founded on a commercial and agricultural basis, had not been then conceived by any nation of Europe, much less by England.

Local, domestic, and political causes were, however, most efficacious in preventing England and France from emulating Spanish and Portuguese enterprise in America. In England, the long vigorous, successful, and politic administration of Elizabeth, was, with all its beneficial effects, inadequate to heal all the wounds inflicted by a century of anarchy, civil war, or misgovernment which preceded her reign. The resources of France, and the chivalrous gallantry of its people, were employed, during almost the whole of the century, in either wars of ambition, national defence, or civil tumult.

* See page 45.

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Henry IV. as late as 1600, had merely succeeded in securing his crown by force of arms, and had yet obtained little leisure to cultivate the arts of peace.

In both nations, finances, able seamen, and commercial knowledge were wanting; and to these moral, were superadded physical impediments to foreign colonization, arising from deficiency of population. Though thus retarded, nevertheless, the germ of national force existed, and the spirit to give that force effect, was annually gaining intelligence by means of the press, and preparing for that long and embittered rivalry in America, which gave ascendancy to English over French power on this continent.

SECTION III.

STATISTICS.

THIS department of the Repository, agreeable to the original plan, shall be appropriated to that branch of statistics most immediately connected with geography. The articles also of Section III. in the two first volumes, will be generally such as arise from and tend to illustrate the subjects of the Geographical and Historical departments.

Probably, for a protracted future period, a water communication through our mountains, will form a vital question of internal politics. The solution of this gigantic problem, like that of a north-west passage to China and India, may call into action the most enthusiastic feelings, and excite the highest exertions of individual talent. It has been said, with metaphysical correctness, that "no unproductive exertion can be made." Such has been thus far the result of speculation on canal navigation from the Atlantic rivers to the illimitable regions of the west. Calculations on practicability decried before experiment, as extravagant, have eventuated in joining Lake Erie to Hudson river. With all, however, already executed, national enterprise seems to be only awakened to the importance of the object. The people of the United States, as a nation, in assuming a high rank amongst the families of mankind, are also awarding a part of their resources, mental and physical, to the creation of new means of internal association.

In such a political course, pre-eminence is not attained and preserved by the mere possession of independence, but rests on the basis of intellectual and physical improvement; upon

the conception and execution of designs unprecedented for magnitude and utility. The canals of New-York, colossal as they are as examples of human labour, are only fine as specimens of what remains to be performed by consolidated national force. That man deserves the grateful meed of a public benefactor, who enlists his talents and fortune in tracing the incipient plans necessary to the development of such structures.

Amongst the plans of internal improvement agitated in our general councils at the last session of Congress, 1823-4, one was a projected canal and lock union of the Atlantic waters with those of Lake Erie, by the route of Potomac, Monongahela, Ohio, Big Beaver, and either the Cayahoga or Grand river.* In the execution of this line of artificial navigation, the whole United States is deeply concerned, but more especially so, Virginia, Maryland, Pennsylvania, and Ohio. Mr. James Schriver of Uniontown, Fayette county, Pennsylvania, deserves much credit for his services in the early development of the geographical features of the country intended to be traversed. This gentleman, early in 1824, published in Baltimore, a pamphlet under the following title:

“Account of Surveys and Examinations, with remarks and documents relative to the projected Chesapeake and Ohio, and Ohio and Lake Erie canals.”

* The last session of Congress, appropriated one hundred and sixty-three thousand dollars, for internal improvement, almost the whole of which is to be expended in experiments—such as surveys, examination for routes of canals, &c. We subjoin a list of the acts of appropriation with the respective amounts annexed.

An act authorising the President to cause surveys and estimates to be made for such routes for Roads and Canals, as he may deem of importance in a commercial or military point of view, or for the transportation of the United States' mail.—The sum appropriated, \$30,000.

An act for making experiments with a view to the improvement of the navigation of the rivers Ohio and Mississippi.—The sum appropriated, \$75,000.

An act to make a road in the Michigan territory, from Detroit to the Ohio state line.—Length of the road seventy miles.—Sum appropriated, \$20,000.

An act to make a road in the Territory of Arkansas, from Memphis, in Tennessee, to Little Rock—distance one hundred and sixty miles.—Sum appropriated, \$15,000.

An act to make a road in the territory of Florida, from Pensacola to St. Augustine—distance three hundred and sixty-five miles.—Sum appropriated, \$20,000.

The same act authorises the survey of routes for roads, from Cape Sable to the Suwaney river, and from Cape Florida to St. Augustine.—Sum appropriated, \$3,000.

These acts were all reported by the committee, of which our worthy representative, Mr. Hemphill, is chairman; and it will be found upon an examination of these acts, that scarcely a more judicious distribution of these funds could have been adopted.—*U. S. Gazette*, July 26, 1824.

This publication would deserve serious notice, if it contained nothing of value beyond its motto, which in few but clear and energetic words, thus depicts the reciprocal interests of the east and west sections of the United States :

“For my own part, I wish sincerely, that every door to that country, (the west,) be set wide open, that the commercial intercourse with it, may be rendered as free and easy as possible. This, in my judgment, is the best, if not the only cement, that can bind those people to us for any length of time—and we shall, I think, be deficient in foresight, if we neglect the means of effecting it.”—WASHINGTON.

In addition to this text, upon which volumes might be written, Mr. Schriver's pamphlet contains a mass of judicious observation and instructive document, which are calculated to give ample reward to the statistical inquirer.

The number is few, who have duly weighed the entire importance of this subject ; the following estimate, will serve to exhibit the comparative extent of that country of the west, the moral weight of which is in a state of rapid development. The whole land surface of the earth is, in round numbers :

Asia, - - - - -	10,000,000
Europe, - - - - -	3,000,000
Austral Asia and Polynesia, - - -	4,000,000
Africa and contiguous islands, - -	8,000,000
North America and contiguous islands,	9,000,000
South America and contiguous islands,	6,000,000
	<hr/>
	40,000,000

Considered as capable of sustaining dense and cultivated population, at least fifteen millions of square miles may be deducted for unproductive tracts, leaving twenty-five millions for that part of the earth on which highly civilized society can exist.

The already organized states and territories of the United States, extend over one million one hundred and thirteen thousand square miles. Of this expanse, at least one million is capable of giving support to a very compact general population. This reduced area is, we see, equal to one-twenty-fifth part of the civilized habitable earth. In this estimate is excluded all the widely extended wastes of the west towards the sources of Missouri and Columbia rivers, and Pacific ocean.

At the census of 1820, the actually organized states and territories stood thus relatively :

	Square Miles.	Inhabitants.
Alabama, - - - -	51,770	143,000
Arkansas, Territory of, -	100,000	14,273
Connecticut, - - - -	4,750	275,248
Columbia, District of, -	100	33,039
Delaware, - - - -	2,120	72,749
Florida, Territory of, -	54,000	10,000
Georgia, - - - -	58,000	340,749
Illinois, - - - -	58,900	55,211
Indiana, - - - -	34,000	147,178
Kentucky, - - - -	37,680	564,317
Louisiana, - - - -	48,220	153,407
Maine, - - - -	35,000	297,839
Maryland, - - - -	11,000	407,350
Massachusetts, - - - -	7,250	521,725
Michigan, with N. W. Territory, -	174,000	10,000
Mississippi, - - - -	45,760	75,448
Missouri, - - - -	62,870	66,586
New-Hampshire, - - - -	8,030	244,155
New-Jersey, - - - -	6,857	277,575
New-York, - - - -	46,000	1,372,812
North Carolina, - - - -	48,000	638,829
Ohio, - - - -	38,260	581,434
Pennsylvania, - - - -	47,000	1,049,458
Rhode Island, - - - -	1,580	83,059
South Carolina, - - - -	24,000	502,758
Tennessee, - - - -	40,000	422,813
Vermont, - - - -	8,278	235,764
Virginia, - - - -	63,000	1,065,304
Total,	1,116,419	9,662,010

Turning our eye to a map of the United States, we behold the foregoing area, naturally subdivided into two great sections, separated by a wide system of mountains. Taken in its utmost extent, the Atlantic slope only spreads over two hundred and sixty thousand square miles, leaving in the connected interior basins of St. Lawrence and Mississippi, or rather that of the Gulf of Mexico, the prodigious extent of seven hundred and forty thousand square miles. The interior section, therefore, exceeds that along the Atlantic ocean as three to one nearly. If we advert to the immense excluded tracts, towards the Pacific, the comparative estimate we have made is very much too favourable to the Atlantic slope.

In the distribution of population, at the period of the last census, we have some most striking document. The Atlantic states, east of Pennsylvania, inclusive, contained 4,367,480 inhabitants. Western states, including those from the Canadian lakes to the Gulf of Mexico, and west of the Appalachian mountains, had, at the same period, 2,233,767. The states along the Atlantic ocean was peopled by the residue, 3,062,066.

The elements of the respective masses present very interesting subjects of reflection to the philosopher and politician. Of the great mass of 6,601,247, found in the north-eastern states from Pennsylvania inclusive, and those of the west and south-west, only 370,000 were slaves; whilst of 2,233,767 inhabitants in the south-western Atlantic states, more than 1,160,000 were slaves.

The practical application of such data, may enable existing statesmen to avail themselves of present advantage, and prevent future evil. It is within the scope of the recollection of the middle aged part of the existing generation, when the basin of the Mississippi was, with very partial exceptions, an howling waste; in 1820, more than two millions, and now, (1824,) no doubt, above two millions five hundred thousand people inhabit this immense surface. In great part composed of free whites, and by the canals of New-York connected by water communication with the north-eastern Atlantic states, a flood of congenerous population will pour south-west. It is not, however, the present, but the future locality of population with which we are concerned in this inquiry. I have shewn, that if only the area included in the organized states and territories is taken into the estimate, more than two-thirds of the productive soil of the United States is in the basin of the Gulf of Mexico. When in the state of Ohio, in the early part of this year, I ascertained, that the existing population exceeds seven hundred thousand, or above eighteen to the square mile. A general population equal to Ohio, over 740,000 square miles, would yield an aggregate of thirteen millions three hundred and twenty thousand. Hamilton county of Ohio, in 1820, contained seventy-nine to the square mile; such density of population on 740,000 square miles, would present a grand total of upwards of sixty millions.

Let no man dare trifle with experience. In 1790, the entire civilized inhabitants on that part of the United States on the basins of the Canadian sea and Gulf of Mexico amounted to about 100,000; in the subsequent ten years, they increased to upwards of 500,000; and in 1810, exceeded one million. From 1810 to 1820, this rapidly accumulating mass more than doubled. It is perfectly safe to assume fifteen

years as a period within which the inhabitants of the region we have been reviewing, will increase two-fold. Allowing two and a half million for the present, such ratio of accumulation would give, in 1870, twenty millions, or but little above twenty-seven to the square mile. We may therefore, without danger of presumption, assert, that before another half century has elapsed, an immense preponderance of population will be in the west. The mind swells with a momentous futurity. The rapidity of change deceives the senses, mocks the legislator, and outruns the geographer. States, cities, towns, and farms, rise before the astonished traveller. The moment is at hand when political power must follow physical force. A revolution in our domestic relations is gradually withdrawing the centre of wealth and moral force towards an interior region, where society must possess more attributes of cohesion than in any other region of equal extent on earth.

It is only necessary to turn our eye to a map of the United States, to trace the walls which enclose the population of the basin of the Mississippi and contiguous places, and confine them to two points of commercial egress. Nature provided the overwhelming volume of the Mississippi, and the genius of one man has added another by artificial means. Unless other channels are opened, New-York and New-Orleans must be the emporia of the almost interminable regions of interior North America. In the formation of a great central line of canal improvement, when its moral, political, and fiscal benefits are taken into the estimate, difficulties ought to stimulate to action, and expense disregarded. Nations rush to wars of ambition, without calculating consequences; but when the most invaluable public works are proposed, every trivial expenditure is scrupulously examined.

Politicians are too seldom statesmen, and even national legislation founded too much on the affairs of the moment, without prospective view. The whole nation is now at an enormous expense to build legislative halls and palaces for the officers of government; edifices which the slightest foresight, the most cursory survey of territory, must convince every unprejudiced mind, are doomed, at no very distant day, to remain untenanted, if the present order of things continue to operate. Despotism carried the court of Russia from Moscow to the swamps of the Neva, and despotism continues it there; but in the United States, the people have retained in their own hands the despotism of legislation, and the choice of the spot where the national councils are to be held; and consequently the seat of general legislation must approach that of population. This is not an idle indulgence of hypothesis, it is induc-

tion from the previous facts of our history, and from the very nature of the human mind.

We have before us a territory exceeding two-thirds of the entire national domain, and a territory which, in less than forty years, has gained from about twenty thousand to one and a half million of inhabitants. It may startle any mind undisciplined to reflection on the subject, to be told, that in less than another forty years, at least fifteen millions of inhabitants will exist on the great central valley of the United States; and that before the termination of this century, this region will contain an immense majority of the people of the United States.

The fearful anticipation does not rest here. It is not alone the residents in the expansive basin of the Mississippi which will be bound together by the silken cords of mutual interest and affection. If we turn to that artificial river which has already almost received its aliment from Lake Erie, we at once behold the adamant link, which unites the north-east to the south-west sections of our country. De Witt Clinton has received, and will continue to receive the meed of the highest admiration, and the most embittered calumny, for the execution of this work; a work which can only perish with the world, of which it forms one of the finest features; and a work which insures the immortal fame of its illustrious projector. When the rubbish and scaffolding of the human character have alike crumbled to dust, and when the foul passions of his own age have been buried in the grave of the existing generation, then will the name of De Witt Clinton stand in history, stable as the mountains of his own native state, mocking the ravages of time.

Much, however, as have been said and written on the great Western Canal of New-York, the most important effect it can produce, has been generally overlooked. The deteriorating effects of slavery in the southern states have been hitherto considerably counteracted by a constant emigration from the north-eastern states. The moment the canal into Lake Erie is completed, the tide of emigration must change its course, and rush upon western Pennsylvania, Ohio, Michigan, Indiana, Illinois, and Missouri.

To remove the impediments imposed to intercourse between sections of so much reciprocal consequence, is a labour truly national. The fortune of that statesman is enviable, whose name will be associated with the completion of canal navigation, more than two thousand five hundred feet above the ocean tides. To expatiate on the grandeur of such designs

is to lessen the effect, and to dilate on their utility is to insult the understanding of the reader.

The unprecedented increase of the human species in the United States, has been considered as the most interesting fact in modern history; but is not the peculiar moral means, and the unequalled local advantages of this increasing body, a still more important subject of reflection? Does not the spectacle of social happiness transcend mere numerical mass? Reply to such queries is spontaneous. In all the vigour of youth, and with the recorded wisdom of ages, the United States smile at labours beyond the strength of nations in political decrepitude.

By reference to the appended profile maps and tables, it will be seen, that the great spine of the Appalachian system, or rather the dividing line of the rivers of the Atlantic slope and those of the Mississippi basin, rises by a very gradual ascent from the Mexican Gulf to the source of Tennessee, Great Kenhawa, Roanoke, and James river. Here appears to be the highest table land in the United States, between the Atlantic slope and the basins of St. Lawrence and Mississippi. From this elevated tract, the dividing ridge maintains a nearly equal height from North Carolina, over Virginia and Maryland, into Pennsylvania. The summit level in Maryland, between the sources of Potomac and Youghiogany rivers, lies 2486 feet above the Atlantic tides. Advancing north-east from the latter level, the mountain system imperceptibly depresses, crossing Pennsylvania, and in New-York between the sources of Tioga branch of Susquehanna and Seneca lake, has sunk to 885 feet above tide water. The Newtown and Seneca level, though thus depressed, nevertheless lies 465 feet above that of the New-York canal near Rome; the latter being only 420 feet above tide water in Hudson river.

It remains an undetermined problem, whether the sources of the West Branch of Susquehanna admits of any pass to the branches of Allegany river, more depressed than that between Tioga river and Seneca lake. From any data yet procured, the pass from Newtown to the head of Seneca lake is the lowest summit level from Rome, in New-York, to the western part of Georgia.

Rising therefore on the intermediate table land, the sources of the Chesapeake rivers flow from those of the Mississippi and St. Lawrence basins, at various heights, from eight hundred and sixty-five to two thousand five hundred feet. In this sketch, the extreme elevations of the mountains are not taken into view, regard being solely paid to those influential on the formation of canal navigation. It is remarkable, that advanc-

ing south-west from Rome, in New-York, that nature appears to oppose increasing difficulties to the execution of canal improvement, by the gradual rise of the dividing ridge.

The following tables and annexed profile maps have been constructed to illustrate the subjects treated of in the third section of this number.

No. 1.

Table of the ascents and descents from tide water in James river to the mouth of Great Kenhawa, by the route of Jamestown, Craig's creek, Sinking creek, and Great Kenhawa. Profile map No. 1. was constructed from this table.

	Miles.			Feet.	
Richmond up James river to mouth of Craig's creek,		200	Rises		925
Up Craig's creek to mouth of John's creek,	49	249	do.	345	1270
Highest spring tributary to Craig's creek,	8 $\frac{1}{2}$	257 $\frac{1}{2}$	do.	228	2498
Lowest point on dividing ridge,	0 $\frac{1}{4}$		do.	53	2551
Highest spring tributary to Sinking creek,	0 $\frac{1}{4}$	258	Falls	42	2509
Mouth of Sinking creek,	34	292	do.	924	1585
Down Great Kenhawa to mouth of Greenbriar river,	55	347	do.	392	1333
Bowyer's Ferry,	46	393	do.	403	930
Kenhawa at the foot of the Great Falls,	21	414	do.	341	589
Ohio river at the mouth of Great Kenhawa,	94	508	do.	108	481

No. 2.

Table of the ascents and descents from tide water in James river to mouth of Great Kenhawa, by the route of James, Jackson's, Greenbriar, and Great Kenhawa rivers. Profile map No. 2. was constructed from this table.

	Miles.			Feet.	
Richmond up James river to mouth of Craig's creek,		200	Rises	3	925
Mouth of Dunlap's creek, above that of Jackson's river,	25	225	do.	313	1238
Lowest point on dividing ridge,	16	241	do.	1240	2478
Mouth of Howard's creek into Greenbriar river, near Lewisburg in Greenbriar county,	12	253	Falls	838	1640
Mouth of Greenbriar river,	50	303	do.	713	1333
Bowyer's Ferry,	46	349	do.	403	930
Foot of Great Falls,	20	369	do.	341	589
Mouth of Great Kenhawa,	94	463	do.	108	481

No. 3.

Table of the ascents and descents from tide water in Potomac river at Georgetown, to Lake Erie at the town of Cleveland, by route of Potomac, Youghiogany, Monongahela, Ohio, Big Beaver, and Cayahoga rivers. Profile No. 3. was constructed from this table.

	Miles.			Feet.	
Georgetown to Great Falls,		12	Rises		143
Harper's Ferry,	40	52	do.	39	182
Shenandoah Falls,	5 $\frac{1}{2}$	57 $\frac{1}{2}$	do.	43	225
Cumberland,	130 $\frac{1}{2}$	188	do.	312	537
Mouth of Savage creek,	31	219	do.	446	983
Summit level,	14	233	do.	1903	2486
Mouth of Deep creek, a branch of Youghiogany river,	16	249	Falls	342	2144
Down Youghiogany river to Smithfield, on U. S. road,	22 $\frac{1}{2}$	271 $\frac{1}{2}$	do.	739	1405
Connellsville,	37 $\frac{1}{2}$	309	do.	507	898
Mouth of Youghiogany,	40	349	do.	87	811
Pittsburg,	18	367	do.	11	800
Mouth of Big Beaver river,	30	397	do.	106	694
Up the latter to foot of Falls,	1 $\frac{1}{2}$	398 $\frac{1}{2}$	Rises	12	706
Head of Falls,	2 $\frac{1}{2}$	401	do.	44	750
Warren,	50	451	do.	104	854
Summit level between the sources of Big Beaver and Cayahoga rivers,	10	461	do.	53	907
Level of Lake Erie at the mouth of Cayahoga river at Cleve- land,	60	521	Falls	342	565

No. 4.

Table of ascents and descents from the level of tide water in Delaware river, to the level of Lake Erie at Buffalo, by the route of the Schuylkill, Union Canal, Susquehanna, and Chemung or Tioga river, Newtown creek, Seneca lake and outlet, and the Grand Canal of New-York, from Montezuma to Buffalo.

	Miles.			Feet.	
Philadelphia to Reading,		55	Rises		186
Summit level between Tulpe- hocken and Swatara,	34	89	do.	310	496
Susquehanna at the mouth of Swatara,	34	123	Falls	220	276
Harrisburg,	13	135	Rises	10	286
Sunbury,	50	185	do.	200	486

No. 4. (*Continued.*)

	Miles.			Feet.	
<i>Brought over,</i>		185			486
Wilkes Barré,	60	245	Rises	100	586
Tioga Point,	60	305	do.	189	775
Newtown,	20	325	do.	51	826
Summit level, between the Tioga river at Newtown and Seneca Lake,	7	332	do.	59	885
Head of Seneca Lake,	13	345	Falls	445	440
Outlet of Seneca Lake,	35	380	do.		440
Montezuma on the Great Canal,	20	400	do.	69	371
Commencement of Rochester level,	63	463	Rises	126	497
Along do. to the locks at Lockport,	65	528	do.	68	565
Here commences the Erie Level, which extends into that lake.	31	559			

No. 5.

Table of ascents and descents from tide water in the Hudson river at the city of Albany, to the level of Lake Erie, by the route of the Great Western Canal of New-York.

	Miles.			Feet.	
Albany to Schoharie creek,		42	Rises		286
Rome level at Herkimer,	28	70	do.	132	418
Along that level,	65	135			
Montezuma,	38	173	Falls	45	373
Lyons,	24	197	Rises	61	434
Rochester level,	58	255	do.	65	499
Along that level,	66	321			
Lake Erie level at Lockport,				66	565
Along that level to Black Rock and into Lake Erie,	31	559			

MISCELLANEOUS.

The twenty miles of canal, extending from the vicinity of Reading towards Philadelphia, were opened for use on the 5th of July last. The ceremony of commencing the first complete canal navigation in Pennsylvania, was conducted with all due solemnity, by a deputation from the board of managers of the

Navigation Company; accompanied by a numerous party of citizens from Reading and neighbouring places, a committee from the Union Canal Company, and several members of the city councils of Philadelphia. About 7 o'clock A.M. three barges, the *Thomas Oakes*, the *Stephen Girard*, and the *De Witt Clinton*, left the town of Reading having on board near three hundred persons, and proceeded through the pond formed by the dam at Lewis' Falls, to the entrance of the canal. Horses were there immediately attached with towing lines to the boats, and for the first time within the state of Pennsylvania, complete canal navigation was exhibited.

This auspicious event excited a strong feeling of pleasure in the adjacent country, thousands flocked to enjoy a sight a few years past they little expected ever to witness.—*U. S. Gazette*, July 8th, 1824.

This is in every respect the age of bold design, and not unfrequently successful experiment. The project of a tunnel, or arched carriage way under the Thames, at London, has been seriously agitated, and except its novelty we see nothing extravagant in the plan. If both were alike novel, a bridge over the water would in most cases be considered a much more difficult undertaking, than a tunnel underneath. To their ignorance, or neglect of the fact, that water would rise to its own level, the ancients stood indebted for their aqueducts; may not bridges in numerous instances owe their existence to a far less excusable ignorance amongst the moderns?

Subaquatic tunnels would oppose no obstacle to navigation, nor be liable to interruption by frost; and if well constructed in the first instance, much less exposed to injury than bridges.

Staffordshire—Grand Trunk, or Trent and Mersey Canal.

The additional tunnel through Harecastle Hill, was commenced last month. It is calculated to occupy the labour of five years, during which several hundred men must be employed. The expense has been estimated at a guinea an inch, (forward). The distance being about one mile and three quarters, or 2880 yards, which alone will make 103,680 guineas. The total expense has been calculated at a quarter of a million sterling. Shafts will be sunk and steam engines erected for raising the earth, &c. at different points of elevation—the tunnel averaging about seventy yards in depth from the surface of the hill. The Grand Trunk Canal was begun in 1767, and finished in 1777, and such is the richness of the

company, and the business of the canal, that the cost is no object compared to the advantages to be gained.—*London New Monthly Magazine for June, 1824.*

The above Canal is about 100 miles in length, and overcomes a fall of 642 feet by 75 locks, and has already one tunnel through Harecastle Hill 2888 yards in length, 9 feet wide and 12 feet high, another at Preston-on-the-hill of 1241 yards, at Barton of 572 yards, at Saltersford another of 350 yards, and at Hermitage of 130 yards. It has several reservoirs to feed the summit covering together about 220 acres, and there are a number of railways and branch cuts connecting the canal with mines and quarries. The boats used are 80 feet long and 6 feet wide, and the locks 7 feet wide. The rates of tonnage are a penny-half-penny per ton per mile, and the articles carried upon it are coals, salt, pottery wares, lime, gypsum, slates, and agricultural products. *The Shares* originally 100*l.* each, sold as high as 2280*l.* each in May 1824.

Perhaps no two experiments ever made have been successful against more obstacles, or productive of more beneficial results than those of steam boats, and the canals of New-York. The following extracts exhibit a few of the practical effects.

In the latter days of July past, several gentlemen arrived in New-York, from New-Orleans, Mobile and Blakely, by way of Pittsburg, and Lake Erie. Those from Louisiana ascended the Mississippi, and those from Alabama travelled by land to Nashville in Tennessee; thence proceeded by the Cumberland and Ohio rivers to Pittsburg in steam boats. From the latter place they passed in stages to Detroit, where they embarked in the elegant steam boat *Superior*, Captain Bunker, for Buffaloe; thence by Erie canal to Albany, and down the Hudson to New-York.

These travellers state the very interesting fact, that one third of the passengers in the steam boat *Superior*, were from the Gulf of Mexico, preferring this route, from the south to the north, as being the cheapest, the most comfortable, and by far the most pleasant. It must indeed be a most delightful tour in the warm season, affording an opportunity of viewing some of the finest and most variegated scenery in the United States, comprising the rivers Mississippi, Ohio, and the Hudson, Lake Erie, the falls of Niagara, and the Great Western Canal, the most stupendous work of modern times.

It is probable that this route will be, after the Great Western Canal is completed, chosen as part of the fashionable tour from the south.—*National Gazette, August 2d, 1824.*

Mr. F. A. Stewart, commission merchant, No. 88, Coffee House Slip, New-York, received, August 7th, 1824, bills of lading, and a note of consignment, of a cargo of Onondago salt and kelp, to be shipped on board the ship Ontario, *calculated for canal and river navigation*. She is schooner rigged, and clears from the port of Syracuse,* for New-York, and thence to Hartford, Connecticut. Her cargo consists of the common fine salt of Salina, manufactured by the Syracuse company, by the process of solar evaporation; and of coarse salt, made at Boynton rocks, by a low degree of heat. The kelp is also a valuable article for our market.—*National Gazette, August 11th, 1824.*

The tolls on the New-York Western Canal received this year, from the opening of the navigation to the first of August, amount to \$130,000; nearly \$90,000 more than was received in a similar period of last year, and within \$70,000 of the entire sum calculated on by the canal commissioners, in their last Report.

Lumber now reaches Albany at \$4 per 1000 feet. Merchandize which formerly cost \$30 per ton from the city of New-York to the interior, now reaches its destination, in half the time, at \$6 per ton.

West gypsum in stone (unpulverised) has been sold at Albany at \$3 per ton, and Nova Scotia at \$4 50 cents. Coarse Onondago salt, at 53, and fine at 40 cents per bushel.—*National Gazette, August 12th, 1824.*

Inland Navigation.—It is with pleasure we notice the arrival from Mauch Chunk of a boat laden with 326 barrels of flour and twenty tons coal. The flour was manufactured on the north-east branch of the Susquehanna. And this arrival is an interesting fact, inasmuch as it is the first experiment of bringing the trade of that river to Philadelphia by means of the improved navigation of the Lehigh. The freight of this flour from Mauch Chunk to Philadelphia, a distance of 140 miles, was 30 cents per barrel.

It is also gratifying to state that the Lehigh Company have sent down to this city the present season 150 boats carrying 230,000 bushels of coal, and that the regular shipments from Mauch Chunk now amount to 3000 bushels per day.

* Syracuse is situated on the Great Western Canal at the head of Onondago lake, about 50 miles west from Utica. At Syracuse a branch canal leaves the main trunk, and passing by Salina, enters by several locks into Onondago lake. The works erected near Syracuse for making salt by evaporation stand on alluvial flats, and are very extensive.

Lehigh coal is now reduced to 25 cents per bushel, at Philadelphia.

An article in a Boston paper states, that so low was the premium of insurance, on the ship *Edward Newton* and her cargo, that it would require the profit arising from an insurance of eighty-six millions of dollars, to cover the loss which the offices would have obtained, had the whole been insured. This fact shows the low rate at which insurance can be effected; and the destruction of the ship shows how many dangers beset a vessel upon the ocean.—With these facts in view, we marvel that a cent of property is ever suffered to leave the wharf, without being covered by an insurance.

By a letter from the commander, Captain H. Bestody, dated St. Philip de Benguela, March 12th, 1824, the fine ship *Edward Newton* of Boston, was burnt on the 20th of February, in the Atlantic ocean, at south latitude 29°, longitude east from Greenwich 10° 30'.—*National Gazette*, August 3d, 1824.

To the prudent advice hinted in the foregoing extract may be added the unaccountable and culpable neglect of farmers not insuring their houses and barns. It is not too much to say, that more than \$20,000 would not cover the loss this season in farm, houses and barns, by fires occasioned by lightning, which stands on record in the Philadelphia papers. These losses become still more distressing by that of human life to swell the calamity in many instances.

Two modes present themselves, one to avert, the other to remedy this evil. A cheap rod of iron, answers the former, and insurance, the latter purpose; and yet where the lives of a family and their means of subsistence are at stake, how much are those not only prudent, but really humane precautions neglected.

On Friday and Saturday, July 30th and 31st, 1824, owing to the muddy state of the water, the operation of pumping at Fair Mount was suspended. This afforded an opportunity of ascertaining the quantity drawn from the reservoir for the use of the city, and it was found to amount on Saturday, to two million one hundred thousand gallons. The usual consumption in warm weather, is 1,900,000 gallons a day; in cold weather, 1,250,000 gallons.

The mean of those extremes amounts to 1,540,000 gallons. The population actually supplied with hydrant water exceeds very little if any 70,000 persons, or upwards of 22 gallons to each individual. The entire number of inhabitants in Phila-

delphia and Liberties, by the census of 1820, was 108,809; the present number, it is probable, exceeds one hundred and twenty thousand. An aquatic expenditure of 1,575,000 gallons, would therefore admit an individual supply of more than 13 gallons to the whole inhabitants of Philadelphia, Southwark, Spring Garden, the incorporated Northern Liberties and Kensington.

FOR THE NATIONAL GAZETTE.

Mr. Editor.—Mr. Randolph says that Philadelphia is in a state of atrophy, because it has neither water power nor coal. It is without capital too, according to that gentleman's printed speech, and can never possess foreign commerce.

To show what these idle assertions are worth, I send you the following statistic view of Philadelphia; it has been prepared for a Guide of this city now in the press of Messrs. Carey and Lea. S. B.

STATISTIC VIEW OF PHILADELPHIA.

NATIONAL DEBT.

The whole amount of the debt of the United States on the 1st of January, 1824, was \$90,451,834 24 cents—of this sum \$43,509,211 52 cents are held in Philadelphia, thus divided:

Owned by its citizens and corporate bodies	-	29,182,499 50
Owned by foreigners	- - - - -	14,326,712 02
		<hr/>
		\$43,509,211 52

Our own citizens receive an annual interest on this debt of	- - - - -	1,700,668 11
And foreigners	- - - - -	743,915 43
		<hr/>
		\$2,444,583, 54

The annual interest on the <i>whole</i> debt of the United States	- - - - -	5,642,724 95
Of which, as is shown above, Philadelphia receives or very near <i>one half</i> of the whole.		2,444,583 54
New-York receives for her citizens and foreigners		1,338,950 39
Boston	- - - - -	1,178,357 74
Baltimore	- - - - -	208,365 16

BANK OF THE UNITED STATES.

Philadelphia holds in the capital stock of the Bank of the United States, 37,269 shares, valued according to the present price at \$122 per share, and amount to \$4,545,818. The an-

nual dividend received in this city on that stock at the present low rate of dividend, is \$186,345.

	Shares.
New-York holds in this stock - - - - -	40,289
Massachusetts - - - - -	27,837
Baltimore - - - - -	38,490

COMMERCE.

Philadelphia is the third, if not the second importing and exporting city in the Union, as will be seen below. I say the second, because the official accounts for Massachusetts, which stand next in amount to New-York, comprehend the great commercial towns of Salem, Newburyport, &c. the trade of which, when subtracted from that of the state, would probably leave Boston below Philadelphia.

The comparative view of the commerce of the four principal districts stands thus for the last year :

New-York imported - - - - -	\$29,421,342 00
Philadelphia - - - - -	13,696,770 00
The whole state of Massachusetts - - -	17,607,160 00
Baltimore - - - - -	4,946,179 00
<hr/>	
New-York exported - - - - -	\$19,038,990 00
Philadelphia - - - - -	9,617,192 00
The whole state of Massachusetts - - -	13,685,239 00
Baltimore - - - - -	5,030,228 00

The tonnage of Philadelphia stood thus on the 31st of December, 1824:—Permanent, enrolled, licensed, &c. 84,927 tons; since which more than 10,000 tons have been added. There were built this last spring, as I am informed, 15 vessels, measuring 5000 tons.

POST OFFICE.

Philadelphia paid postage on letters last year -	\$77,048 00
New-York - - - - -	92,891 00
Boston - - - - -	49,923 00
Baltimore - - - - -	41,442 00

INTERNAL IMPROVEMENT.

The exertions of Philadelphia have far exceeded those of any city in the Union, for the promotion of internal improvement. It must be remembered that, vast as are the efforts of the state of New-York, the city of New-York has had no other agency in them than loaning money on good security and on interest, whereas the advances made by the citizens of Philadelphia have been hazarded upon their own responsibility, and exceed in amount the estimated cost of the celebrated canals

of New-York. The gross amount of the several objects are alone given here; but they are taken from correct data.

In bridges over the river Schuylkill - - -	425,000 00
Stock in Schuylkill Navigation, Union Canal, Lehigh, Chesapeake and Delaware Canal - - -	3,700,000 00
Turnpikes to Columbia and other places constructed with City Capital—Water Works at Fair Mount	2,600,000 00
	<hr/>
	\$6,725,000 00

CONTRIBUTIONS TO THE STATE GOVERNMENT.

The average annual expenses of the state government of Pennsylvania, are about \$325,000 including interest on her debt. *Philadelphia* pays \$260,000 of these expenses, or four fifths of the whole.

REAL AND PERSONAL ESTATE.

Not having at hand the last triennial assessment, I avail myself of that of 1817; a year of considerable depression, and I omit to take any account of the many valuable additions since made in splendid public and private edifices.

The city and suburbs (or county) are officially returned at \$55,418,579, which must be doubled, because the value put on real estate by assessors, is never more than half the market price.

The real estate was then <i>seven years ago</i> - - -	110,837,158
Bank Stock, including that held in United States Bank - - - -	15,000,000
Insurance Stock - - - -	4,200,000
Shipping - - - -	4,000,000
Other personal estate, such as merchandize, stock in manufactories, bonds and mort- gages out of the city, City Stock, plate, furniture, all equal at least to one half the real estate, including \$25,000,000 of United States Stock held in <i>Philadelphia</i> , 55,000,000	<hr/>
	78,200,000
	<hr/>
	\$189,037,158

DIVISION OF FIVE MILLIONS AMONG THE SPANISH CLAIMANTS.

To the foregoing items, I add, as an evidence of the foreign commerce and enterprize of our citizens, the share paid to Philadelphia out of the awards on the Spanish claims, as compared with other commercial districts. The statement is from an intelligent gentleman at Washington.

<i>Philadelphia</i> receives	-	-	-	-	-	-	1,250,000
New-York	-	-	-	-	-	-	1,000,000
Baltimore	-	-	-	-	-	-	700,000
All New England	-	-	-	-	-	-	1,750,000
South of Potomac	-	-	-	-	-	-	300,000
							<hr/>
							\$5,000,000

This very valuable table was inserted in the *National Gazette* of July 3d, 1824, and now published in Carey and Lea's "*Philadelphia in 1824*," for which it was originally compiled. By the liberal permission of Messrs. Carey and Lea, it is inserted in the *Repository*. Such information cannot be too widely disseminated.

Connection of the Ohio and Lake Erie.

We noted, about the beginning of August, the dispositions which had been made by the board of engineers of the United States to prosecute the surveys of the route of the contemplated canal to connect the waters of the Ohio with those of the Chesapeake. The whole line, our readers will recollect, was stated to have been divided into three sections, to each of which a brigade of topographical engineers and surveyors were allotted—and that the board itself subsequently proceeded from Pittsburg to the Big Beaver river (one of the tributaries of the Ohio) for the purpose of examining into the practicability of connecting the waters of Lake Erie with those of the Ohio. We have now before us information from the latter quarter as late as the 12th of August, at which time the Board had extended its examination as far west as the mouth of Grand river, emptying into Lake Erie. It was on its return from that point, and would proceed to Ashtabula and Conveyant; thence to examine the communication from the Conveyant river, by the lake of the same name, to French Creek, a branch of the Allegany river.

The members of the board have been almost incessantly on horseback, and have, it is believed, concluded their examinations of the connections between the Beaver and the Cayuhoga and Grand rivers. The country embraced in this section has been found to possess an extraordinary character. On the ground where the streams take their rise (both those that fall into the lake and those of the Ohio) it is flat and swampy for many miles in extent; so much so that the roads through it, have either to be raised considerably by throwing the earth from the sides to the middle, or by causeways of logs—as, otherwise, the deep mud would absolutely render them im-

passible. From this extreme flatness the small streams appear in some instances at a loss which way to run—whether to take to the Lake or the Ohio. The Cayuhoga is spoken of as a peculiar river. Taking its rise in the neighbourhood of the Lake, it runs thence south for some distance, when it takes a bend and returns to the lake at Cleveland, where it is of considerable size. The examinations of the board have ascertained the important fact that the whole of the waters of the Cayuhoga may be thrown into a branch of the Mahoning, and thence, by the Beaver into the Ohio; and this junction may be effected by a cut of three-fourths of a mile in length, and of seventeen feet at its greatest depth.

The character of the country examined is such that there appears to be in the summer season as great, if not a greater supply of water on the summit than at a considerable distance down on either side. The country is found to be badly watered—many mills were passed at which there was not a drop of running water, and to meet with a spring was a matter of rare occurrence.—*Baltimore American*.

From the foregoing it would appear that the waters of the Cayuhoga may be diverted from its natural course into Lake Erie and made to flow into Ohio, and consequently may be used as a feeder to a canal in either direction. A want of running water in the latter part of summer, and beginning of autumn, is not peculiar to the section of country between the Ohio river and Lake Erie. Almost all western Pennsylvania, and great part of Ohio, though abounding in springs, the evaporation is so great when the thermometer exceeds 75° as in a great measure to exhaust the streams.—*ED. REP.*

Union of the Atlantic and Pacific Oceans.

The most stupendous in conception, and most important in its results upon the interests of all mankind, is that of a canal to connect the two great oceans which bathe the opposing coasts of America. This subject has been the theme of speculation ever since civilized man set his eye upon the long irregular isthmus which joins the two wide spreading extremes of this continent. It is only, however, recently that the subject has assumed an aspect calculated to arouse attention to an immediate inquiry into the practicability of its execution. That inquiry we may hope will lead to the only effectual incipient step to a further advance; that is, a survey of the whole Isthmus.

In the present state of geographical science, doubt and darkness reign over the geography of that part of America. The

following communication made its appearance not very long since in the Baltimore Federal Gazette, and deserves notice as containing many very judicious reflections.

“To open a communication by canal between the Atlantic and Pacific Ocean, is an enterprise that has been long spoken of, long an object of speculation; one that has occupied the attention of able writers, and which if accomplished upon even what might be deemed a moderate scale of capacity and expense, would present to all nations new and extraordinary facilities for trade, and confer on the nation through whose territory the canal of navigation would pass, benefits almost beyond the reach of human anticipation, and certainly incalculable in point of revenue, and of political as well as commercial power.

Now that the riches of the New World are thrown open to the Old—now that the emancipated inhabitants of Mexico and the southern portion of the New, can carry on commerce with the Old World, and with the United States, unfettered by unnatural and oppressive restrictions, and to the advantage of all, there only seems wanting a junction of the waters of the Atlantic and Pacific by canal, to give to trade that light and life, that spur and impetus, which the Omnipotent seems to have contemplated in his works, and which it would also seem was reserved for the present generation to promote, and if not to enjoy to the widest extent, at least to impart and secure to posterity.

A canal such as that alluded to must, in a short time from the period of its completion, change the whole face of commerce, open sources of wealth heretofore unknown, turn trade into channels now unexplored or unthought of, and finally expand the mind, meliorate the condition, and improve the moral state of man.

A work so important in its objects, so honourable in its nature, and promising to be so vast in useful results, belongs to the Republic of Colombia.—To this republic, first amongst the new states, in order, in constitutional liberty, in heroic suffering and public virtue, belongs the actual achievement of an enterprise which would appear to have been hitherto little more than the waking dream of the philosopher, or romantic project of the engineer, but which we have at last reason to believe, is easy of accomplishment, and on the verge of execution.

A gentleman with whom we have conversed, who has travelled much in Colombia, who has made surveys of different parts of that country, and who, from education, intimacy with science, and general intelligence, is well qualified to decide on the subject, prefers a communication between the two seas unit-

ing the rivers Atrato and St. Juan de Chirambira to any other route that has been yet mentioned or explored. He has, indeed, nearly satisfied us, that a junction cannot take place either by the lake Nacaragua or by the river Chagress.—The latter is to be considered as beyond a doubt impracticable. The oceans being here divided by a ridge of at least three thousand feet above the level of either sea, and as to the route by the Nicaragua, it is to be observed, that this lake lies many hundred feet above the level of the ocean; that all extra or superfluous waters are invariably carried off by the river St. Johns, which though the only outlet, has ever proved adequate to drain the freshes of the lake; that the river itself runs with great rapidity; that it would require an immense sum to lock or dam it for the purposes of navigation; that even were this done, it is apprehended the opening a junction across the neck of land dividing the lake of Leon from the Pacific, would drain the upper lake, Nicaragua, below the level of its union with the head of the river St. Johns, and thus render the intended communication by this route altogether hopeless. We present these points of consideration briefly as possible, from a variety of data before us, but, we trust, sufficiently clear for all the objects of a newspaper communication.

The local circumstances attendant upon the proposed plan of junction by the rivers Atrato and St. Juan de Chirambira, are of a totally different character, and could we wonder at any neglect or mal-administration, distinguishing the Spanish government from all others in the civilized world, we should express our astonishment, that a work so easy of execution, and of such, we might say, unbounded utility, should have been left unattempted to the times in which we live. The plan of the projected union between the two seas is, it will be seen, simple and easy, for nature has made it so.

The Atrato taking its rise about the middle of the fifth degree of North latitude, and of the 77th of longitude West from London, runs smoothly and not rapidly, nearly a north course about five hundred miles, till it empties itself into the Gulf of Darien, one hundred and forty miles south-west of Carthagena. In the whole of its course it is clear of obstruction of any kind, with deep water, except on its bar, which has only seven feet, but this is fully sufficient for large steamboat navigation.

The St. Juan de Chirambira also has its rise about five hundred miles in the interior, but takes a different direction from the Atrato, and empties itself into the Pacific at Chirambira Bay, where there is a good harbour. This river is also of easy navigation, with deep water, and in running its course it ap-

proaches within four miles of the Atrato, at about eighty miles from the head of the latter, the ground between being a dead level—so much so, that the overflowing of either river inundates the intervening plain, and on such occasions boats have actually passed from one river to the other.

Thus a canal of four miles, to the cutting of which there is neither the obstruction of rock, river or mountain, unites the Atlantic and Pacific oceans for all the important uses of large steam-boat navigation!

Should a particular branch of the Atrato be used, near to the place of the proposed junction, locks in some place would be necessary, but whatever route may be fixed upon, the work presents neither natural difficulty, nor the necessity of a very large expenditure, whilst the consequences promise to be such in utility and magnitude as to defy calculation.

To the United States and to Europe the benefit would be of vast import; it would bring the Pacific and even China, comparatively home to our doors. A merchant, in the event of such a canal being completed, could, to Lima for instance, have a cargo out, and a return, in less time than is now occupied in the voyage out, independent of the decrease of risk, the consequent saving of insurance, and diminution in the expense of freightage. Besides, new sources of trade would be opened, and articles which now never pass Cape Horn, either way, would become valuable objects of traffic. However, to enter into a full examination of this part of the subject, would take more time and room than we can devote to this article, though sufficiently impressed with its interest and importance.

But if the benefits to commerce and to nations generally would be so great, what incalculable advantages would not such a communication bestow on the Republic of Colombia!—what a spring of industry would it not give to her people—what a mine of wealth would it not open to her merchants—what a scope of power would it not place in the hand of her government! It is only in this latter point, perhaps, that the undertaking is to be viewed with jealousy, for it is evidently calculated to insure her influence, approaching to command, over the trade of the Pacific—the Pacific, which seems destined by nature for steam-boat navigation, and which is touched at so many distant and important points by the Republic of Colombia. It would also give her unexampled weight in commercial treaties with foreign powers, and an immense revenue from even a very small transit duty. Indeed to make the navigation profitable, the duty ought certainly to be very small. The fine city of Carthagena now languishing, occasioned by the dearth of produce in its immediate neighbourhood and the

opening the port of Santa Martha, might be thus saved from impending ruin, for should the now contemplated canal by the Atrato be cut, Carthagena, from its vicinity to the mouth of that river, its position, commanding the entrance of the Gulf of Darien, and its safe harbour, would become the emporium of the trade to the Pacific, from Europe and the United States, and that important fortress of the republic, which now begins to put on the appearances of decay, would soon assume all the spirit and prosperity of commercial greatness.

We might, from the materials in our possession, enlarge much more and shew still further how variously the proposed canal would benefit Colombia and all nations, but we have said enough to gratify curiosity, and sufficient to awaken interest on a subject of unquestionably great importance to the world."

The writer of this document, like many others, has indulged in expressions derogatory to the Spanish government in America, without perhaps duly weighing the peculiar circumstances under which that government was placed: and also, in applying to the colonial system of Spain in America, what is general, or universally due to all systems of colonial dependence. It is probable that the most ruinous circumstance peculiar to the Spanish colonies, was the spreading of a limited population over too wide a surface. I have already in this number, remarked the scarcity of population in Europe at the epoch of the discovery of America.* In addition to the confined source of emigration, the Spanish colonists were spread along the continent and islands of America, from N. lat. 40° to S. lat. 33°, or over upwards of five thousand miles from north to south, and on above five millions of square miles. On all this vast area, embracing the finest climates of the earth, and concentrating in many places the most valuable natural productions—but man, the most valuable of all, was wanting. In the neighbourhood of Mexico, where condensed population and wealth have put it in their power, the inhabitants have done more than has been ever done in any other place by a people labouring under colonial restriction.† When civil

* See page 38, note.

† The mountain valley in which the city of Mexico stands, has been compared to the bottom of a reversed saucer. In its natural state this elevated basin was liable to occasional and destructive floods, by which the city of Mexico was frequently inundated. To remedy this inconvenience, the Mexicans have cut a canal of desiccation through the mountains and led the surplus water into the river Tula. "The Desague" (*Drain*) says Humboldt, "is in its actual state (1803,) undoubtedly, one of the most gigantic hydraucal works ever executed by man."

The Desague of Mexico will be amply noticed in a future number of the

liberty is once secured, the face of affairs will no doubt assume another and infinitely more favourable aspect. The resources of the various Spanish nations will be developed with a rapidity which must astonish the inhabitants themselves.

To cut the isthmus, is, however, not simply to enhance the power and resources alone of the nation over whose territory the canal is made, but such a work must change the whole commercial relations of the world. It is an enterprise of the highest import to the free nations of both Americas; and as no direct geographical view has ever been given of that part of America over which the proposed connection is to be made, it is my intention to devote a share of the Statistical part of the Repository to that object. Baron Humboldt, in his political essay on New Spain, noticed the different routes by which a canal could be formed, but entered into no general description of the Isthmus. In the actual state of geographical science no completely satisfactory detail can be made, but enough is known to admit the subject to be brought forward in a more connected form than has been done hitherto.

No very definite idea has been conveyed by the term Isthmus of Darien, or Panama. The narrow strip of land between the Gulf of Panama of the Pacific, and the Caribbean sea, an arm of the Atlantic, presents the nearest approach of the waters of those vast oceans; but, with very unequal width, extending from south-east to north-west upwards of 1500 miles, the immense Isthmus affords several points where the distance from the Atlantic to the Pacific is evidently within the scope of canal enterprise without any very onerous expense. This will be more clearly understood from the following geographical view.

If we extend the great American Isthmus, on the east to the mouth of the Atrato river, and on the west to the Gulf of Tehuantepec, and river Chimalapa and Guasacualco, it reaches from half a degree east to eighteen degrees west from Washington city. The bottom of the Gulf of Darien and mouth of the Atrato, is in N. lat. $8^{\circ} 30'$, the Gulf Tehuantepec in N. lat. $16^{\circ} 20'$, and the mouth of the Guasacualco river in N. lat. $17^{\circ} 30'$.

Within these geographical limits spread two vast peninsulas, containing together, more than three hundred and fifty thousand square miles, and discharging into the Gulf of Mexico and Caribbean sea numerous rivers, many of which are of considerable magnitude, and length of course.

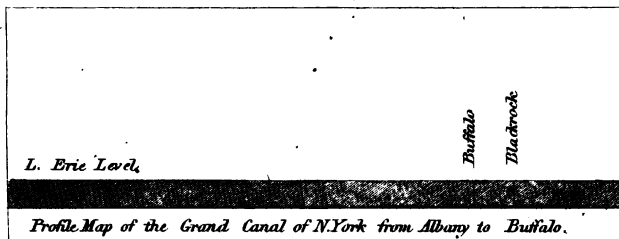
Repository; it is alluded to in this place to shew, that where obstacles were not insurmountable, the Spanish colonists in America were not that indolent race they have been supposed. The parent state was in reality chargeable with thwarting every laudible undertaking, and what parent state has ever acted with uniform liberality towards its colonies?

It may be premised, that in the present, as in almost every other instance, the geography of the mountains is most defective. In all our maps of North America, the great central chain of Anahuac, in Mexico, is extended to the south-east, and connected with the chains of the Andes in South America. I have been for upwards of twenty years of opinion that this arrangement was radically wrong, and almost the reverse of fact. One very general law of construction seems to prevail in the mountain systems of America; the chains extend in lateral ridges in one general direction. This I have already shewn is strikingly apparent in the Appalachian system. As far as we possess correct information, the same regularity of structure prevails in the great chains west of the basin of the Mississippi; and in those of the Brazils, and Andes of South America. In all these chains their range seems uninfluenced by the contiguous oceans or rivers. If my hypotheies respecting the mountains of Guatemala be correct, their range is nearly north-west and south-east, leaving deep intervening valleys. Also, that similar to other American mountains those of Guatemala are of very unequal elevation, admitting passages not very elevated, from ocean to ocean. We see by reference to the profile maps prefixed to this number, that the Appalachian admits two passes from the Atlantic into Lake Erie one, less than nine hundred, and the other only five hundred and sixty-five feet above tide water in the latter ocean. That similar and much less elevated passes exist in Guatemala and Colombia, I trust will be seen in the course of this memoir.

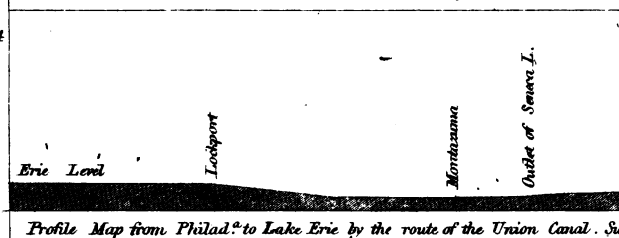
Another very important element in the investigation of this subject, is that of the respective levels of the Atlantic and Pacific oceans. The trade winds and current of rotation, it is well known, produce that immense whirlpool in the Atlantic Ocean, to a part of which opposite the south-east coast of North America has been given the name of Gulf Stream. Between South America and Africa, and within the tropics, the surface of the Atlantic ocean flows regularly westward. Separated by Cape St. Roque, S. lat. 5°, this vast ocean current is divided: the northern section inclined to the north-west by the coast of South America, is carried into the Caribbean sea. Again urged forward in the same direction by the general range of the Isthmus, the accumulated flood pours into the Gulf of Mexico between Yucatan and Cuba; and again escapes into the Atlantic between Cuba and Florida.

(To be Continued.)

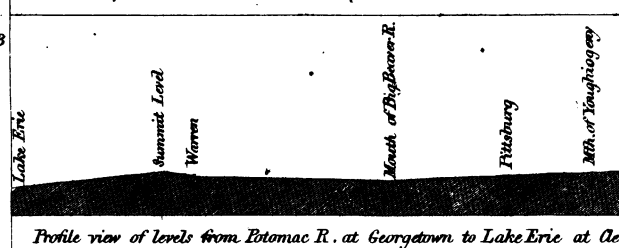
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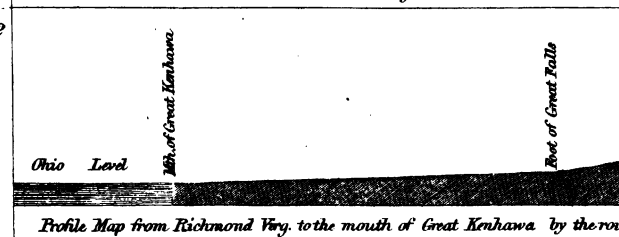
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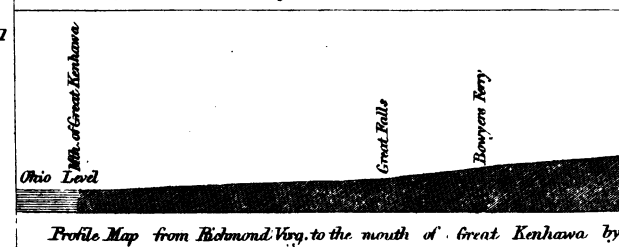
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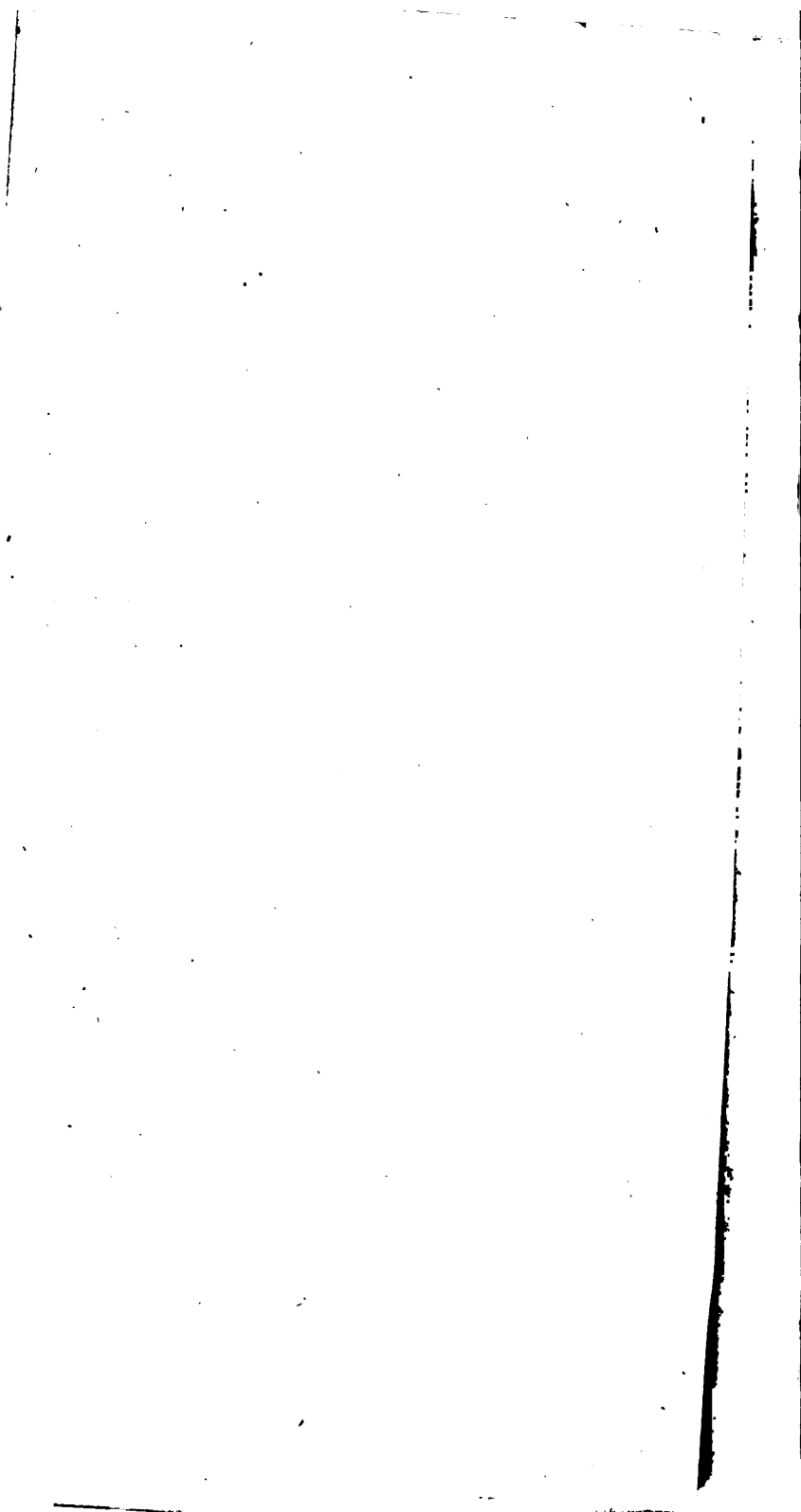


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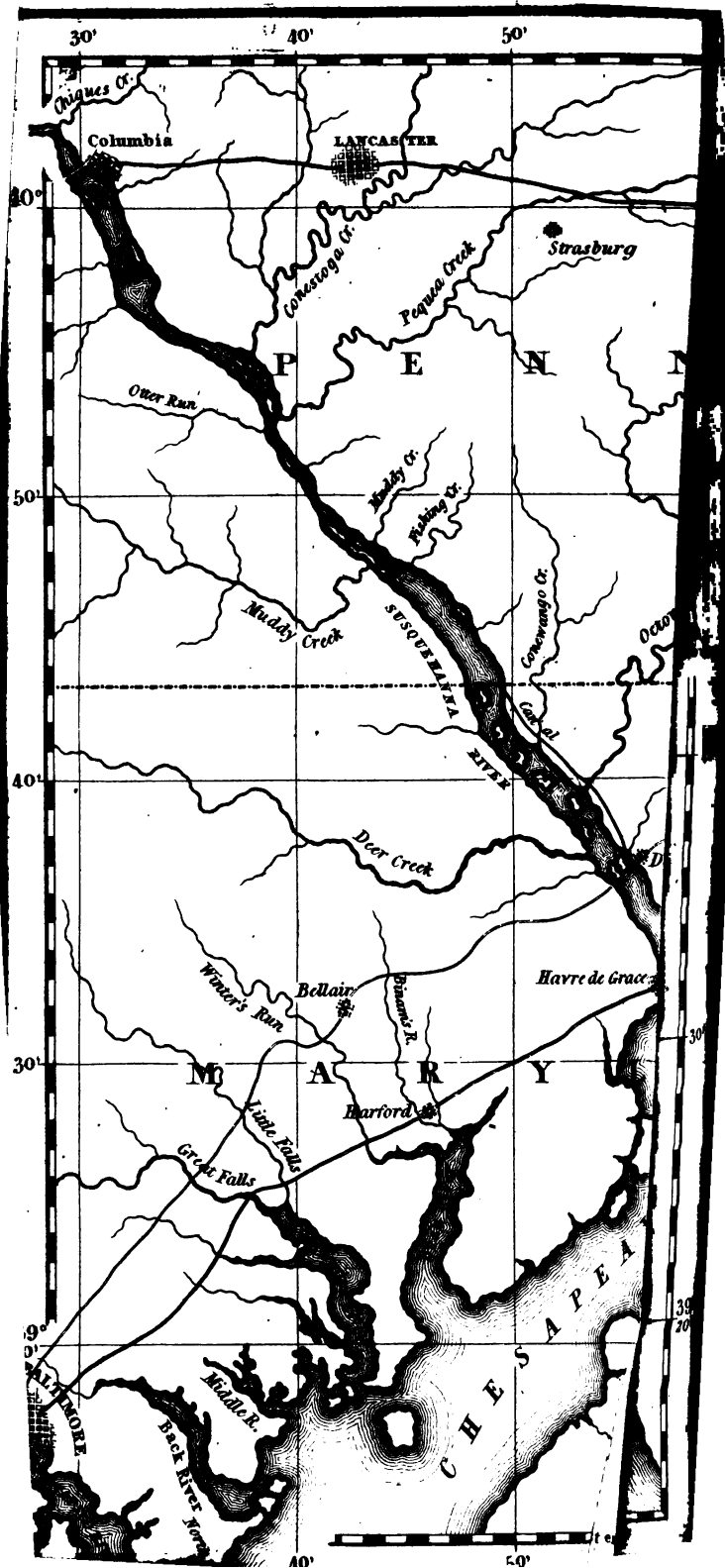






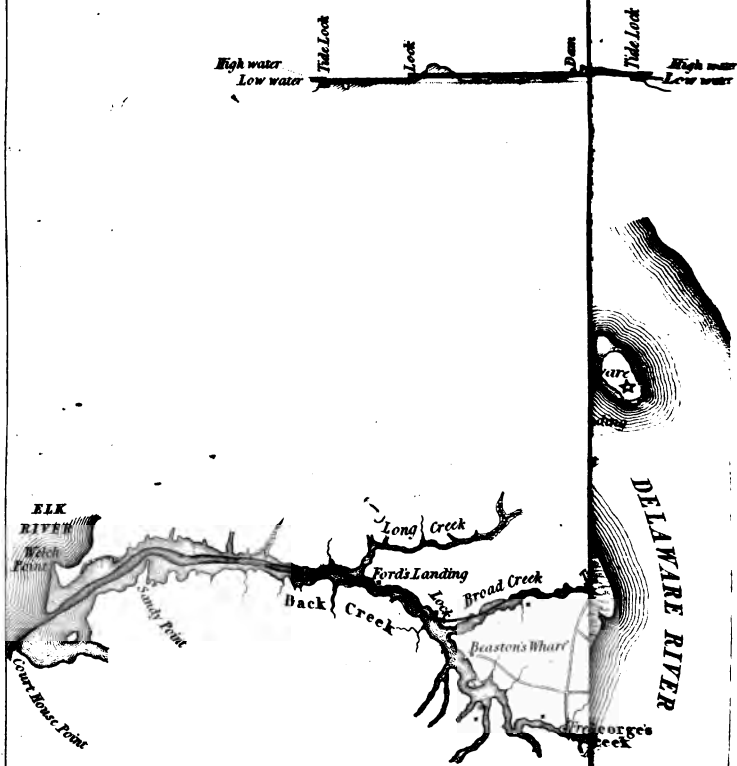


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DARBY'S REPOSITORY.

VOL. I.

OCTOBER, 1824.

No. 2.

SECTION I.

GEOGRAPHICAL VIEW OF PENNSYLVANIA.

WE now enter on the geological structure of Pennsylvania. It might be objected to this course, by observing that the geology of this state had not yet been sufficiently examined to admit a scientific delineation. This may in part be correct, but enough is known to permit a general sketch of its geology. The coloured map forming the frontispiece of this number of the Repository, will enable the reader to follow the description with facility.

The order of description as laid down in page 35 of No. 1, is as follows:

Component rocks of the mountain chain.

Formation of the mountains and valleys.

Relative slope and height of the mountains and valleys; and,

The facilities afforded to natural and artificial transportation by land and water.

As this description is intended for general readers, technical phraseology will be, as far as possible, avoided. It will be, however, necessary, indeed indispensable, to use some terms not in common use; I therefore define the principal.

Primitive, are such rocks in which, hitherto, no organic remains have been detected. Of this class, we have, in Pennsylvania, in any quantity deserving notice, but two, granite and gneiss. Granite does not exist extensively, except in rolled masses on or near the earth's surface.

Transition rocks are those in which some, though few organic remains, appear. Of this class, the German *Grau Wacke*, forms the great central valley bases of Pennsylvania, and com-

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pletely crosses the state. It is admixed, or alternates, however, with many other species of rocks, particularly limestone.

In the transition section of Pennsylvania, the quartz *aggregates* of Maclure, form with very trifling exceptions, the mountain masses. The latter is formed of rounded pebbles from those of a large size to that of the finest sand; the interstices evidently a clay cement. This rock, if described in a treatise expressly on geology, would admit of an astonishing variety; but wherever I have seen it, from the central parts of New York, over New Jersey and Pennsylvania into Virginia, its texture marks a common, though not invariable structure.

Secondary, or *floetz (flat)* rocks, are found parallel to the horizon or nearly so; in contradistinction to the primitive and transition classes, which latter incline, more or less, from nearly a perpendicular position to an approach to horizontal.

By reference to the map, it will be seen, that the secondary formations by far the most extensive tract of Pennsylvania, of any other formation.* The rocks of this class vary extremely, as will be seen in the sequel.

I here beg leave to observe, that I am reluctantly obliged to use terms, which are so vague. In my description it shall be my endeavour to place before my reader the structure and capabilities of Pennsylvania, rather than fatigue him with harsh and defectively defined names. It is acknowledged by geologists of the first order, that rocks in many cases, approach the qualities and appearances of each other so nearly, that the nicest eye cannot distinguish one from the other. The line also between the great classes defies all delineation, and perhaps has really no existence in nature. The position is also again varied so greatly, as to render any classification from that circumstance a source of error.

The lines of demarcation on the map, were in part drawn from Maclure's geology, and in part from my own observation, and may serve as a general guide, though no doubt far from minutely accurate.

The uncertainty, however, which attends the limits of the formations, does not extend to the river basins; there all is distinct, well defined, and accurate to all useful purposes.

Some truly interesting phenomena are presented to view by a map of Pennsylvania thus coloured. The great rock formations, correspond nearly to the range and curve of the mountains, whilst the river basins seem uninfluenced by either. I have already observed,† that the Susquehanna pierces all the

* Formation, is a term used for any class of rocks; thus we say, primitive formation, transition formation, secondary formation, &c.

† See page 26 of No 1.

formations; this astonishing fact is now made sensible to the eye. We here behold, that the great dividing line between the Atlantic rivers, and those of Ohio, is not formed by the mountains. The Susquehanna is seen pouring down from an elevation above that of the base of the mountains, against which its various branches impinge, and have, in the lapse of time, torn passages through the river rocks, and their waters gradually uniting, at length reach the level of the Atlantic tides, and tranquilly mingle with the waves of the Atlantic ocean. This contest between the apparently stable mountains, and the equally apparently fleeting rivers, which began, it is most probable, with the creation, is far from terminated. The Delaware, similar to the Susquehanna, has had its struggle of ages to reach its recipient, and the beds of both, above the ocean tides, contain yet much to remove, before their streams can flow with tranquil or equal march.

This feature in our geography is in a peculiar degree favourable to canal union between the Atlantic and western waters. The rivers have, during accumulated centuries, done that which man could not have dared to conceive. The rivers have torn the mountains to their bases, and given to human beings, and the fruits of their labour, a free passage. When this subject is viewed with the eye of philosophy, it is one of those sources of reflection which invites the exercise of every noble faculty of the mind;—but we now advance to our detailed survey, proceeding from east to west.

The entire south-eastern border of Pennsylvania, with a very partial exception of alluvion along Delaware river, is a primitive region. The great mass of constituent rock, gneiss, in very great variety of cohesion. The line, rather indefinitely marked in nature, which limits this primitive tract, crosses the Delaware river near New Hope—extending in a south-westerly direction through Bucks, Montgomery, and Chester counties, to near Kennet Square, in the latter. From Kennet Square the primitive extends nearly west to the centre of York county, where it again turns to south-west, and finally leaves Pennsylvania, entering Frederick county, in Maryland. A small triangular strip of primitive extends into Pennsylvania, forming the northern part of Bucks county below the mountain ridge which separates that county from Lehigh.

The primitive is followed by a secondary tract, narrow between the Delaware and Schuylkill rivers, but widening south-west from the latter, embraces the central parts of Chester, Lancaster, and York counties. Limestone and marble of very superior quality abound in this formation.

The old red sandstone formation, which stretching from the

Hudson opposite the city of New York, forming the base of great part of Bergen and Essex, almost all Middlesex, with the southern parts of Morris and Hunterdon counties in New Jersey, enters Pennsylvania, underlaying part of Bucks, Chester, Lancaster, York, and Adams counties. The general limit to the northwest, and west, of the old red sandstone, is the Blue Ridge. The latter, similar to the gneiss, varies extremely as respects the cohesion of its parts. The existence of this rock is at once announced by the appearance of the soil, and from the bold, though seldom precipitous aspect, of the hills.

The range of the Blue Ridge through Pennsylvania I have already traced, both on the map of the state, and in the text.* I may here observe, that the secondary region below the red sandstone, is traced by a line, in a very remarkable manner conforming to the range of the Blue Ridge. The latter chain of the Apalachian system constitutes one of the most definite geological lines of demarcation in the United States generally, but in particular in Pennsylvania. The valley between the Blue Ridge and Kittatinny, is from 15 to 20 miles wide, inflecting with the mountains. This valley has very erroneously been designated as the great limestone valley of Pennsylvania, whilst in fact that rock underlays not more, if one-half of its surface. I have myself traced the limestone formation, part of which forms the south-east part of the Kittatinny valley, from Fishkill in Dutchess county, New York, into Virginia. That section of this valley which traverses Pennsylvania, is about 160 miles in length, and covers an area of perhaps 3,000 square miles. The south-east part, as I have already observed, is formed of transition limestone; the north-west of clay-slate. The two rocks touch each other in most places, as if placed by art. I have examined their point of contact, on the Lehigh, Schuylkill, Swatara, and Susquehanna. On the Delaware I never have had an opportunity of viewing their point of separation. On the Lehigh, the limestone and slate touch at a place called the Slates, 7 or 8 miles above Allentown. Thence the line of separation extends south-west, leaving Kutztown on the limestone, crosses the Schuylkill nearly mid-way from Reading to Hamburg, crosses the Tulpehocken north-east from Womelsdorf, leaving the latter on the limestone; continuing south-west, leaving Lebanon also on the limestone, reaches the Swatara near the mouth of the Quitapahilla. From the latter creek to Hummelstown, the Swatara forms the boundary with very little exception. At that village some very interesting phenomena appear. Directly opposite the village a large mass of limestone is detached by

* See pages 13 and 14 of No. 1.

the stream from the main body, affording another very striking evidence how little the beds of water courses are, in Pennsylvania, influenced by the formations through which their lines have been traced by the hand of nature. Hummelstown, and all the immediate vicinity, is based on limestone, and immediately at the bridge over Swatara on the road to Harrisburg, the river leaves the slate, and winds the residue of its course over limestone, to Middletown, where it is lost in the vast volume of Susquehanna.

From Hummelstown the line separating the limestone and slate, pursues again a south-west course to the mouth of Paxton creek, in the borough of Harrisburg; which rests on an alluvial deposit partly on the slate, and partly on the limestone. South-west from the Susquehanna at Harrisburg to the Maryland and Pennsylvania boundary, the demarcation between the limestone and slate, curves with the contiguous mountains, including on the former rock, Carlisle, Shippensburg, Chambersburg, and Greencastle, and leaving Pennsylvania nearly with the Conococheague creek.

The physiognomy of nature is as strongly delineated as is the rock formation which constitutes the base of this extraordinary valley. The limestone section is comparatively level, with a very superior soil. As in almost all calcareous countries, spring water reaches the surface of the earth, in very unequal quantity and locality. Immense springs are found in the whole extent, but in many places so very distant from other fountains, as to leave the intermediate space so greatly deficient, as to be distressing to the inhabitants. The slate region is more broken than that of the limestone, the soil of the former inferior to that of the latter. Water is much more equally distributed on the slate than limestone formation. In respect to forest timber, no very striking difference met my observation.

The very great superiority of the soil of the limestone over that of the slate, is in no one particular more apparent, than in the towns which have risen on each respectively. Easton, Bethlehem, Allentown, Kutztown, Reading, Womelsdorf, Lebanon, Myerstown, Palmyra, Hummelstown, Middletown, Harrisburg, Mechanicsburg, Carlisle, Shippensburg, Chambersburg, and Greencastle, and I might add Hagerstown, in Maryland, have risen on the limestone, whilst from the Potomac to the Delaware, Hamburg, on the Schuylkill, immediately below the passage of that stream through the Kittatinny chain, is the largest village yet built on the slate.

When I reach the subject of the relative distribution of population in Pennsylvania, this very singular valley will again come in review. Though otherwise coloured, the Kittatinny

valley belongs to the great central transition formation of Pennsylvania, which in reality also includes the old red sandstone, and consequently, the transition section extends over all the area between the south-east, and north-west secondary formations, underlaying all the counties of Adams, part of York, Lancaster, Chester, Montgomery, and Bucks, all Northampton, Lehigh, Berks, Lebanon, Dauphin, Cumberland, Franklin, Bedford, Perry, Huntingdon, Mifflin, Union, Northumberland, Columbia, Schuylkill, Luzerne, Pike, and Wayne, with part of Susquehanna, Lycoming, and Centre.

This transition region as coloured on my geological map, is limited on the north-west, commencing at the extreme north-east angle of Pennsylvania, on Delaware river, by the Tunkhannock mountain. This chain reaches the last branch of Susquehanna river at the mouth of the Tunkhannock creek, and by the names of Elk Ridge and Muncy Hills, the West Branch at the town of Williamsport. From the latter place to the Maryland line its range is more indefinite and chain more broken, than north-east from the West Branch.

Taken in its fullest extent, the transition of Pennsylvania forms the base of about 18,000 square miles, being within a small fraction of 200 miles in length and 90 in breadth. It is by far the most mountainous and of course variegated part of the state. The soil partakes of all the shades of quality from the most productive river alluvion, to the most sterile mountain summits; from the exuberant limestone *debris*, to the unyielding siliceous rock. In this formation exists the most extensive masses of mineral wealth found in any equal section of the United States. Iron, and Anthracite coal is the most valuable and most abundant. Iron is disseminated at various points over the whole area; the Anthracite coal yet discovered lie in immense strata on the heads of the Schuylkill, and near the Lehigh river, in Broad Mountain, and on both sides of the Susquehanna, in Wyoming valley near the borough of Wilkes-Barre. Strong indications, however, of Anthracite present themselves in other places, and would justify a belief that but a small part of that invaluable fossil has yet been laid open by human enterprise. The most abundant, and perhaps the best iron ore, found in the transition, lies on the Juniata and its branches. It may not be unworthy of remark, that the iron and Anthracite of the transition, are not perceived to abound in the vicinity of each other; the former predominates south-west, and the latter north-east, from the Susquehanna, below Williamsport. The vegetable productions of the transition is not less varied than is the mineral. Almost every forest tree indigenous to the climate, may be found on the mountains, the

slopes, and valleys, of the Susquehanna. It would be difficult to conceive a species of scenery of which it does not afford an example. Cataracts on the large scale do not, it is true, exist; but those of more humble magnitude abound on the smaller streams. From the very nature and position of transition rock, where it rises into mountain masses, precipices must exist; and such are the features of the mountain landscape of this part of Pennsylvania. I know not of any part of the earth's surface more richly variegated, or more worthy the attention of the traveller or the philosopher; its capability to sustain human habitation will be noticed in another place.

Passing from the transition to the north-west, we at once find ourselves transported to a new region. The face of nature though still broken, presents a less rugged exterior, the rocks, when open to view, lie nearly horizontal, and the soil greatly more uniform. The great secondary formation of Pennsylvania, spreads over above 25,000 square miles, and embraces all the western, north-western, and northern parts of the state. The secondary, like the transition, is rich in minerals; and water impregnated with muriate of soda, (common salt,) not found in the latter, is abundant in the former tract. The Anthracite coal of the transition is replaced by the bituminous coal of the secondary;* and this is the case from one extremity to the other of the respective line of contact. The bituminous coal uniformly exists in, or very nearly in, horizontal strata, from the thickness of an inch, to perhaps in some instances, six feet. The mean thickness, however, of the innumerable beds I have seen, is about 5 feet of coal. Schistose sandstone is generally the substratum of bituminous coal, whilst it is overlaid with black aluminous slate.

Water courses, in proportion to length of course, are much more navigable on the secondary than on transition formation. Waterfalls of any magnitude are very rare in the secondary section of Pennsylvania; in the large streams there does not exist a single cataract, nor rapid, sufficient to impede the passage of boats, and consequently, at seasons of high water, the Monongahela, Alleghany, and both branches of the Susquehanna, are navigated by down-stream vessels from very near their sources. In the latter river, from the asperities of the transition and primitive formations over which it flows, the difficulties opposed to navigation increase approaching tide water. The reverse is the case with the constituent streams of Ohio.

In my third Number, each mountain valley will be reviewed in detail. The present geological sketch cannot be otherwise considered, than as introductory to a more minute survey.*

* See pages 17 and 18, No. 1.

† See page 113.

SECTION II.

HISTORY OF PENNSYLVANIA.*

At the epoch of actual colonization in North America by the English, the entire coast of this continent, from Labrador to Cape Florida, was known by two general names, Newfoundland and Florida. When the Cabots made their discoveries, during the last years of the 15th century, they imposed the name of Newfoundland on the coast which they visited. This term was perpetuated in English books and maps during great part of the 16th century, and was gradually, by the imposition of other names for sectional subdivisions, restricted to the island still known as Newfoundland.

On the 2d of April, 1512, Juan Ponce de Leon, a Spaniard, discovered the coast of North America from the West Indies, and imposed upon his newly discovered region the name of Florida. This term originated from the circumstance of De Leon having descried land on Palm Sunday; "Pasqua Florida," in the Spanish language. Florida became general to designate the south-east coast of North America, not only in Spanish, but in the geographical works of the south of Europe. No definite limit separated the Newfoundland of English from the Florida of Spanish and Italian geography. The latter like the former slowly yielded to other sectional terms, and now is confined, and perpetuated to designate, the south-east subdivision of the United States.

Raleigh's patent of March 25th, 1584, being vacated by his subsequent attainder, a number of gentlemen, instigated principally by Mr. Hackluyt, obtained by petition addressed to James I. a patent, dated April 10th, 1606, for that part of North America extending from north lat. 34° to 45°. As the name Virginia, given by Queen Elizabeth, had already, in a great measure, superseded that of Newfoundland, the former was adopted in the patent of James I. The immense zone of 14 degrees of latitude was subdivided into two, north Virginia and south Virginia, and granted to two distinct companies.

The southern, named the first colony, was granted to what was then called the London Company, and the northern to the Plymouth Company.

With the history of either the London or Plymouth compa-

* A man of the first literary standing in Philadelphia, and a man whose opinion I would most sincerely respect on any subject, objected to me that my historical introduction to the particular history of Pennsylvania was too diffuse; to this I can only reply, that it is only in connexion that our individual history can be understood. See page 35 of No. 1.

nies, or the colonization made under their charters respectively, we are at present only concerned in as far as either had influence upon the settlement and local extent of Pennsylvania. At the epoch of granting the patents of 1606, the English, and in fact all the inhabitants of Europe, were profoundly ignorant of the interior, and possessed a very inadequate knowledge of the sea coast of North America. The very palpable vagueness of the first patents, cannot now be a matter of surprise. Virginia, by the patent of 1606, had no fixed limits to the north and west. All that is now Maryland and Delaware, and part of Pennsylvania, was included, by inference, in its scope.

I have deemed it requisite to anticipate, in some measure, the early history of the causes which produced the long and intricate contest between Virginia, Maryland and Pennsylvania, and which tended to give to the latter a much more restricted extent than that given in the charter; and before any farther discussion, I lay before my readers a brief biography of the founder of Pennsylvania.

William Penn was one of the proprietors of west New Jersey before he was concerned in Pennsylvania; but to clearly understand the mutual and conflicting relations between New York, New Jersey, and Pennsylvania, we must return to March, 1664, when the Duke of York received from his brother Charles II. that spacious grant which had so much influence on the colonization of North America. This grant extended from the western boundary of Connecticut to the eastern shore of Delaware river, of course contained all that is now within New York and Pennsylvania. The obvious injustice of this grant is, in some degree, lessened by the fact, that the Dutch colony at New Amsterdam had always been claimed as part of north Virginia by the English. Col. Nichols, an experienced officer, was sent over with an armament, and entering New York bay, summoned Stuyvesant, the governor, to surrender, who being in no state to resist, after some remonstrance complied, under stipulations of full security to life, liberty, and property; and the English authority superseded that of the Dutch over New York and New Jersey. It may be recorded to the honour of Col. Nichols, that most of the ancient inhabitants found the equity and security of his government such that they remained, and amongst others the old and gallant Stuyvesant, who ended his days in a colony he surrendered with much reluctance, after having ruled 17 years with fidelity. This respectable magistrate, whose true character has been sacrificed to a miserable attempt at wit, in the city he in a great measure founded, is thus spoken of by Chalmers: "Stuyvesant, who had long governed the country, during difficult times,

with considerable ability and valour; and in a good old age breathed his last amid the tears of his countrymen; because his good offices did not cease, long after he had ceased to rule the whole."

Long before the actual conquest of New Netherlands could be known in England, the Duke of York had granted what is now Jersey, to Lord Berkeley and Sir George Carteret, a pair of favourites worthy of himself. The grant creating New Jersey, was dated June 24th, 1664, in the form of a deed of lease and release, in consideration of a competent sum of money, granting to John Lord Berkeley, Baron of Stratton, one of the king's privy council; and Sir George Carteret, of Saltrum, in the county of Devon, knight, and one of the privy council, and their heirs and assigns for ever; all that tract of land adjacent to New England, and lying and being to the westward of Long Island and Manhattan's Island; and bounded on the east part by the main sea, and part by Hudson's river, and hath upon the west, Delaware bay or river; and extendeth southward to the main ocean as far as Cape May, at the mouth of Delaware bay; and to the northward, as far as the northernmost part of said bay or river of Delaware, which is in north lat. $41^{\circ} 40'$, and crosseth over thence in a straight line to Hudson's river, in 41° of latitude; which said tract of land is hereafter to be called Nova Cesaria, or New Jersey."

New Jersey is one of the few English colonies which never underwent any mutation after its creation, and is now a state with exactly the limits expressed in the original charter.

Berkeley and Carteret, soon divided their respective shares of New Jersey; Carteret having the east, and Berkeley the western part. The western section was sold to John Fenwick, in trust for Edward Byllinge and others: a few settlers left England in 1675, and arrived in west Jersey under the direction of Fenwick. This was the first ship which arrived in either west Jersey or Pennsylvania from England. Some difficulties arising between Fenwick and Byllinge, no more settlers came over before 1677. The grantees of west Jersey were Quakers, instigated by religious intolerance to seek a new residence. It is said that William Penn became a joint and large proprietor of west Jersey, more from a disposition to conciliate the differences, and aid the desired removal of some of his friends, than from any personal object of his own. By his means the differences between Fenwick and Byllinge were accommodated, and the latter resigning his share in the colony to his creditors, Wm. Penn was with considerable difficulty induced to join Gawin Lawrie and Nicholas Lucas, two creditors of Byllinge, as trustees of his estate. These gentlemen

were henceforth fully concerned in west Jersey. As we are discussing the history of Pennsylvania, and as that of New Jersey will be amply noticed in the sequel, we now return to our legitimate subject. I mentioned these preliminary facts in order to prepare my class to perceive the connexions of Wm. Penn with New Jersey, which I am compelled to allude to in discussing his share in forming and peopling Pennsylvania.

It is a happiness to any country when the incidents of its history are few; that felicity Pennsylvania enjoys. Perhaps no country containing upwards of a million of inhabitants, and existing 140 years, ever had fewer of those disastrous incidents in its history, which cover one generation with sorrow, in order to amuse those which follow. The first causes of the grant of Pennsylvania, and the controversy with Maryland, which eventuated in giving to this state its present extent and form, I have discussed. We now return to the affairs of the colony from the grant of the first charter, arrival of William Penn, and to the establishment of its last charter.

Chalmers relates some very interesting historical facts respecting the original charter, which I have not met in any other author, and which I have deemed of sufficient importance to read at large.

“In June, 1680, he (Penn) presented a petition to Charles II. stating not only his relationship to the late admiral, but that he was deprived of a debt due from the crown, when the exchequer was shut up; praying, in compassion to the afflicted, for a grant of lands, lying northward of Maryland, and westward of Delaware; and adding, that by his interest he should be able to settle a province which might in time repay his claims. His petition was immediately sent to Waden, the Duke of York’s secretary, and to Lord Baltimore’s agents; in order ‘that they might report, how far the petitioner’s pretensions may consist with their boundaries.’ Both agreed to the proposals of Penn, provided, his patent might be so worded as not to affect the rights of others. To every thing asked of him he agreed, because he knew the importance of concession, while he asked for what might be extremely endangered by opposition. He had the art to procure not only the consent, but the recommendation of the Duke of York. And, in November, 1680, the sketch of a patent, which he had chiefly copied from the charter of Maryland, was sent to the attorney-general, ‘for his opinion of it;’ who not long afterwards communicated his observations, ‘showing the clauses that are not agreeable to the laws here, though they are in Lord Baltimore’s patent.’ After a considerable struggle with the Duke’s commissioners, who insisted that the Penn’s line (southern line) should run at least

twenty miles northward of New Castle, his boundaries were at length adjusted so as to please both parties. And, in January, 1681, the committee of plantations requested that eminent statesman and lawyer, North, chief justice, 'to take his patent into consideration; to provide, by fit clauses, that the sovereignty of the king be reserved; that acts of parliament, concerning trade, and navigation, and the customs, be duly observed; and, in general, that it be so drawn that it may consist with the king's interest and service, and give sufficient encouragement to settlers.' The charter shows, that it had been corrected by the hand of a master. We shall probably hear no future historian speak of it as 'an historical phenomenon, that so excellent a set of constitutions took their rise from an arbitrary court, and a bigoted prince.' When we consider the time at which it was granted, long after the acts of trade and revenue; its singular provisions, which were assuredly settled after the greatest consideration, by the most eminent lawyers and statesmen; the disputes in which the nation was then engaged with Massachusetts; the charter of Pennsylvania must be deemed an object of singular curiosity and of minute discussion."

"In consideration of 'the merits of the father, and good intentions of the son,' in order 'to extend the English empire,' and to promote useful commodities, Charles II. granted to William Penn, as proprietary, in absolute property, that immense region bounded on the east by the river Delaware, extending westward five degrees of longitude, stretching to the north from twelve miles northward of New Castle, to the three-and-fortieth degree of latitude; limited on the south by a circle of twelve miles, drawn round New Castle, to the beginning of the fortieth degree of latitude. The whole was created into a province, by the name of Pennsylvania: saving to the crown its sovereignty, and the allegiance of the proprietary and people. In order that the colony might increase by the multitude of people resorting thither, liberty was given to subjects, those only excepted which should be specially forbidden, to transport themselves in such shipping, 'as by the laws of England they ought to use;' with such merchandise as they should think proper, 'saving the customs for the same, by any statute due or to be due;' to import the productions of the province into England, 'but into no other country whatsoever,' and to export them thence within one year, paying such duties as other subjects, and observing the acts of navigation. Penn was empowered to assemble the freemen or their delegates, in such form as he should think proper, for raising money for the uses of the colony, and for making useful laws, provided, they

should not be contrary to those of England or the rights of the kingdom. To the end that the proprietary, or the people, might not, through inadvertence or design, depart from that allegiance, which, by the laws of the realm, they, *and all other subjects*, owe to the crown, a duplicate of the acts of Assembly was required, to be transmitted within five years to the king in council; in order that, should they be found inconsistent with the sovereignty, or contrary to legal government, they might within six months be declared void. He was empowered to erect courts of justice, to hold plea of causes, civil and criminal; saving to every one the right of appeal to the king in council: And he was enabled to pardon crimes committed within his jurisdiction, treason and murder only excepted. It was required, that the rules for governing property, as well for descent of lands, as for succession of chattels, shall remain, according to the course of the laws of England, till changed by the Assembly. The proprietary was empowered to constitute ports for the convenience of commerce; 'provided, that the officers appointed by the commissioners of the customs, should be freely admitted.' The Assembly was authorized to assess reasonable subsidies on the commodities loaded or unloaded in the harbours of the colony, which were granted to Penn; 'saving to the crown such customs, as by act of parliament are or shall be appointed;' the word, *are*, referring to those already established; the term *shall*, to those that might be imposed in future: And the whole distinguishing, between the provincial revenue for local purposes, and the parliamentary taxes for the use of the empire. He was required to appoint an agent to reside in London, to answer for misdemeanours or wilful neglect, *against the acts of trade*; and in case of failure, the government might be resumed, saving the rights of the people. As incursions might happen, he was empowered to train the inhabitants, to pursue the invaders by sea and land; provided, that no correspondence should be maintained with the enemies of the crown; and that no war should be made with any state in amity. He was enabled to alien the soil to the colonists, who might hold their lands under his grants, notwithstanding the statute prohibiting such subinfeudation. It was stipulated by the king, for himself and his successors, 'that no custom, or other contribution, shall be levied on the inhabitants or their estates, unless by the consent of the proprietary, or governor, and assembly; *or by act of parliament in England*.' Yet the precision of this language did not preclude disputation, because ingenuity can easily frame objections at the command of interest or ambition. By the desire of the Bishop of London, it was stipulated, that, when twenty inhabitants should request

a preacher to be sent them, who should be approved by him or his successor, he shall be allowed to reside without molestation. Should doubts arise, with regard to the true construction of the charter, it was commanded, that an interpretation favourable to the proprietary shall always be made; provided, that none shall be admitted, by which allegiance to the crown may suffer diminution."

"Such," continues Chalmers, "is the substance of a grant, whereon has been established the Pennsylvania government and laws, so highly celebrated for their moderation, their wisdom, their excellent provisions, in favour of liberty. It is remarkable," says their historian, "that such an instrument, penned with all the appearance of candour and simplicity imaginable, and equally agreeable to law and reason; to the claims of the crown and rights of the subject, should be the growth of an arbitrary court. Perhaps it is no less singular, that the national rights, the authority of the laws and the supreme legislature, should have been so carefully attended to and preserved." But it is in the history of Massachusetts, that we shall find this mystery fully explained. Charles II. and his ministers had been long deeply engaged in a contention with this colony; which had given them infinite vexation, and impressed both with the strongest sense of the inconveniences which they felt, to which they found it so difficult, if not impossible, to apply an effectual remedy. It was an anxiety to prevent the like disputes and disorders from arising in Pennsylvania, which dictated the chief clauses of her charter. The general court (of Massachusetts) had deemed the acts of navigation of no force within its jurisdiction, till legalized by its own ordinance; but this grant carefully provided for a compliance with them, under the penalty of forfeiture. Acts had been made by that provincial legislature, inconsistent with the laws and rights of the sovereign state; but this incongruity is here cautiously prohibited. The general court had coined money, and afterwards pleaded its ignorance as an excuse; but to prevent the dangers of misconstruction or design, all laws (from Pennsylvania) were required to be transmitted for approbation or dissent, though this prudent proviso answered little practical good purpose. A standing agent was now required, because that body (the general court of Massachusetts) had either refused or delayed to appoint any, to answer the most urgent complaints. And the rights of the Church of England were now regarded, because she had been suppressed in Massachusetts. Like all the others, this charter, however, thus legal and reasonable, is merely declaratory of the common law, when properly understood and properly applied; and every privilege conferred, or right re-

served, would have necessarily followed a colony, settled by English subjects without a charter; because their immunities and duties adhere to them wheresoever they go. In New York, and the Jerseys; these privileges were enjoyed, subsequent to the revolution, as in Maryland, or Pennsylvania. For, they all equally owed allegiance to the crown and obedience to the laws; in return they were entitled to general protection and legal government. Yet there was in this no express stipulation, as had been inserted in all other colonial patents, "that the Pennsylvanians and their descendants, should be considered as subjects born within the realm;" because the great lawyers, who revised it, knew that such declarations were nugatory because they were inferred."—*Chalmers, P. A. p. 635—640.*

Thus far the historical analysis of the first constitution of Pennsylvania given by this author is excellent, and thus far his work is a good authority on the history of the colony, but here his candour seems to have forsaken him. In pursuing the perplexing dispute between the two proprietaries of Pennsylvania and Maryland, Chalmers enters into the subject much more in the spirit of a colonial agent of Lord Baltimore, than that of an historian, and gives no allowance for the vagueness of the respective charters, or the natural and even excusable partiality of all men in favour of their own claims.

The observations of this author respecting Massachusetts, are true to the letter, and it is only by engrouping the whole into one point of view, that the early history of the English North American colonies can possibly be understood. It is for these reasons I have been so minute respecting the origin of each colony in particular; and also, for another consideration of even greater moment; that is, as I have so frequently observed before, because the opposition between the crown of England and its colonies, commenced in every instance from the first creation of each colony respectively. Mr. Chalmers, as well as all other authors, whose works I have seen, have overlooked one very material circumstance in our colonial history. Mr. Chalmers derides the insertion into the charters of an acknowledgment of allegiance on one hand, and a right of protection on the other; and adds correctly, that these immunities and duties are inherent, and follow English subjects wherever they go. This judicious writer in this instance forgot the important fact, that it was precisely the heartfelt consciousness of their natural rights, that influenced Englishmen in America to resist encroachments, on the part of either the crown, parliament, or individually by the King of England: and it was either their ignorance of these inherent political

principles, or wilful neglect of their legal application, that led the government and monarchs of England into such gross, and as it respects themselves, such fatal errors respecting these colonies.

The charter of Pennsylvania was, indeed, as Mr. Chalmers states, declaratory of not only the common law, but of the ever enduring principles of distributive justice; and its sterling excellence consists in that fact, that it was so declaratory.

In May, 1681, a person of the name of Markham, a relation of William Penn, was sent out by the proprietary to take possession of the colony with a few emigrants, and to inform the resident inhabitants that the country had been granted by charter to William Penn, and that their individual rights were secured by the same act. The agent published his instructions, which contained merely the tenor of the concessions, made between the proprietary and adventurers, and the manner of acquiring lands; the mode of treatment to be observed towards the Indians, whose rights as men were humanely respected; and a few general regulations respecting internal order.

The first dawn of the long and complicated litigation between William Penn and Lord Baltimore commenced in October, 1681. The former wrote to some of the inhabitants, informing them that they were in the limits of his colony. Whether correct or not, the claim at once created two factions, which subsisted until the final extension of the lines of partition, and settlement of boundaries.

In August, 1681, Markham received from the Duke of York, for William Penn, a tract of land round New Castle, which he proceeded with much diligence to purchase from the Indians and people. Enjoying the benefits of a settled neighbourhood, the population increased with considerable rapidity, unembarrassed with the usual severe difficulties which attended most English settlements in North America. Markham visited Lord Baltimore to deliver him the royal letter of April, 1681. By appointment they met at Upland, in the spring of 1682, in order to adjust the point of separation; and where they found out, what neither had previously expected, that from a careful observation, the termination of the 40th degree of north latitude would fall above the confluence of the Delaware and Schuylkill. Now appeared the fatal consequences to one of the parties, should the line of division fall at either extremity of a parallelogram $69\frac{1}{2}$ wide. Both charters were equally vague as it respected the astronomical meaning, of where the line should be extended. In one essential respect, the advantage was in favour of Pennsylvania, as the patent to Lord Baltimore, was expressly for lands inhabited only by

savages, and as expressly excepted places possessed by any Christian people; therefore the existence of the Dutch and Swedes on Delaware river, at the date of the Maryland charter, precluded the proprietary of that colony from any rightful claim as far as that river. Whereas, what is now Delaware, was considered as part of New Netherlands, and included in the patent of 1664, granted by Charles II. to the Duke of York; and by him to William Penn, August, 1682.

The disputes which arose from the ambiguous situation of the shores of the Delaware below the acknowledged limit of Pennsylvania, produced the territories as the three lower counties, New Castle, Kent, and Sussex, and led to the state of Delaware, as we shall see in the sequel.

The original concessions between Penn and the adventurers, being found vague and unsatisfactory, the proprietor, in April, 1682, published the frame of government for Pennsylvania, called its first charter. The features of this charter evince a sacred regard to the inherent rights of the people, and a profound knowledge of political power. They declare their intent to be: "*for the support of power in reverence to the people; and to secure the people from the abuse of power. For, liberty without obedience is confusion; and obedience without liberty is slavery.*"

In prosecution of these salutary objects, the chief aim of the proprietary was to establish a due balance of power. This constitution had one defect, it was too sublime for the condition of man, and could never be actually carried into effect, and was finally, as to the operative proceedings of government, laid aside. *Its principles could not be laid aside*; they were the never changing principles of reason and justice.

As a supplement to the frame, there was published in London, in May, 1682, a body of laws for the colony, agreed upon by the adventurers. "And it does great honour to their wisdom as statesmen, to their morals as men, and to their spirit as colonists. A plantation reared on such a seed-plot, could not fail to grow up with rapidity, to advance fast to maturity, and to attract the notice of the world."*

It may be remembered that I before stated the arrival of William Penn in the Delaware, in October, 1682; and we may, before entering on a historical review of his operations, recal to recollection his then peculiar situation. Joint proprietary of west Jersey; full proprietary of Pennsylvania, by direct grant from the crown of England; and proprietary of what is now

* Chalmers, P. A. p. 642.

Delaware below twelve statute miles north of New Castle, to Cape Henlopen. No man ever came from England to America clothed with so much power, or with such complicated duties to perform. He landed at New Castle on the 24th of October, and found in the country about 3,000 people, Dutch, Swedes, Finns, and English. At that time the Dutch had a church at New Castle; the Swedes three, one at Christeen, one at Tenecum, and one where Philadelphia now stands. The character of the whole has been handed to us, as a plain, strong, industrious people.

The proprietary convened the people at the Court-house, in New Castle, October 25th, where, after possession of the country being given him in due form, he addressed the old magistrates and the people; signifying to them the design of his coming; the nature and end of government; and of that more particularly which he came to establish; assuring them of their spiritual and temporal rights; liberty of conscience and civil freedoms; and recommending them to live in sobriety and peace, he renewed the magistrates' commissions.

The first assembly was called at Chester, on the 4th day of December, 1682, and composed of an equal number of members for the province and three lower counties or territories. Penn held the territories by two separate deeds of feoffment, both of the same date, Aug. 24th, 1682; one for New Castle and twelve statute miles round it; and the other from thence southward to Cape Henlopen. I have been more minute on this subject, as some difficulty has generally existed in comprehending the nature of the ancient connexion between Pennsylvania and Delaware. To account for the almost constant dissension between the territories and the province, it may be recollected that in the former existed a very powerful party in favour of a union with Maryland.

Penn in the first instance prevailed, and at the first general assembly at Chester, an act of union was passed, and the territory divided into three counties, New Castle, Jones', now Kent, and Whorekill's, now Sussex, and the whole with the province to be represented, in one general assembly, and to be subject to the same laws. The Dutch, Swedes, Finns, and other foreigners were then naturalized; the laws agreed upon in England adopted with some very slight alterations; and the assembly separated after a meeting of three days in harmony.

Thus commenced that happy country, that country of so many fond recollections, and that country which in an existence of nearly 140 years, has enjoyed more than usual peace and prosperity. It is a land on which I am proud to dwell; it is the land of my birth, the land of my infant years, and the

land of my warmest wishes in every clime into which it has been my fate to roam.

Previous to the meeting of the first provincial Assembly, Penn visited New York, on the business of the lower counties on Delaware, and immediately after its adjournment proceeded to Maryland, to meet Lord Baltimore concerning their respective limits. Though nature intended Penn and Calvert for friends, and though they met and separated as such, neither receded from their individual pretensions, but agreed to meet again in the spring of the ensuing year.

It appears by a letter from William Penn, of the 29th of December, of the same year, that twenty-three ships with emigrants had arrived safely, and none had miscarried. One expression of this letter is indeed striking:—O! how sweet is the quiet of these parts, freed from the anxious and troublesome solicitations, hurries and perplexities of woful Europe.

How much it is to be regretted that the great and magnanimous author could not have continued to enjoy that peace he so strongly felt and so pathetically described, and that he was doomed to return to that perturbed Europe whose turmoil he so much deprecated.

His first short residence in Pennsylvania was not without the bitterness of care; his proceedings were neither uniformly approved or unopposed; and even here he found how fallacious is human hope.

On his return to Pennsylvania from Maryland, he formed at Coaquannock, now Philadelphia, that bond of union with the natives, which ought alone to immortalize William Penn—not more for the humanity and equity, than for the profound political skill shown in its provisions. The Indians were treated as they were in reality, an inferior and conquered people, whilst their rights were scrupulously regarded. They were taken under the express protection of the government, and forbid to have dealings with individuals, or individuals with them. This and some subsequent conventions, preserved Pennsylvania in peace without arms, forts, or military array, upwards of 70 years. If we contrast such a procedure with too many others in every part of America, the convention of Coaquannock was honourable to human nature.

Within the first year, after the arrival of the proprietary, settlers literally poured into the country; and from the falls of Delaware, where Trenton now stands, to Chester, the banks of the river rapidly became populated, fields were open, houses built, and plenty began to smile.

The great mass of the new emigrants were Quakers, who fled from Europe to avoid persecution. The persons of that

sect who came with William Penn, or who preceded him under his patent, were not the first who came into Pennsylvania. A very considerable settlement was formed in Bucks county, was previously formed under titles granted by Sir Edmund Andros, governor of New York. Some others of less note existed also in different places, one particularly, near where Kensington now stands, at Shackamaxon. Chester is, however, perhaps the most ancient Quaker settlement west of Delaware; their regular meetings at that town reaches to 1675.

Amongst the early settlers were some German Quakers from Cresheim, in the Palatinate; these settled and named Germantown. It was this little colony which has received so striking a notice from Sewal in his history of the Quakers.

The earliest notice we have of Philadelphia as such, was in the latter part of 1682, when Thomas Holme, a surveyor, was directed to lay out the city along the west shore of Delaware river. The place is thus described as, then exhibited on the river, an agreeable prospect: it had a high and dry bank next the water, with a fine view of pine trees growing on it. It is really to us who are now enjoying this delicious residence, a curious subject of reflection, when we know that along that very bank, then overshadowed with pine trees, many of the first inhabitants dwelt in caves, excavated for the purpose. Thus commenced Philadelphia.

It would be an idle waste of time to enter into the minute incidents of a colony, whose birth was unmarked by war or tumult. Hardships of a severe nature are inseparable to new colonists in a wilderness, but of those hardships Pennsylvania and Delaware had less than any of the English colonies, New York probably excepted. The first emigrants to the Delaware were generally persons of sober and moderate habits, who came uninfluenced by extravagant hopes; the wisdom of their commander shielded them from contests with the natives, and their own peaceable demeanour was well calculated to preserve public tranquillity. From all these causes, the advance of the colony has never been equalled along the whole range of the Atlantic coast of America.

Like many other of the English colonies in North America, the primitive form of government was purely democratic, being composed of all the freemen. It was, however, in the instance we are now reviewing only theoretical, as the freemen themselves refused to undertake the actual task of legislation. In summoning the first Assembly, the writs were issued for seventy-two members, leaving it optional with such of the freemen who chose to appear in person, pursuant to the original frame. "But not only the sheriffs by their returns, but the in-

habitants by their petitions to the proprietary, declared that the fewness of the people, their inability in estate, and unskilfulness in matters of government, will not permit them to act; they desired, therefore, that the deputies now chosen, may serve both for the provincial council and general Assembly; three from each county for the former, and nine for the latter."

This was accepted, and for many years continued to regulate the representation.

In 1684, William Penn returned to Europe, and left the government in the hands of the provincial council, of which Thomas Lloyd was president.

Such was the infancy of Pennsylvania. We now close our picture, by drawing a brief outline of the features of its founder, its father, William Penn.

We have now to discuss one of the most remarkable events in history; the formation of a state without war. It remains an undecided problem, how far war may be dispensed with, and how much of national controversy admits decision by an appeal to reason in place of arms. The opinion of any individual cannot decide the hypothesis; I will not obtrude mine. Writing on the history of Pennsylvania in its capital, is attended with one very serious difficulty; on no other spot of the earth are the sentiments of the respectable members of society, on this vital subject, so marked, defined, and expressed as in Pennsylvania. As I do not wish to surrender my own judgment, and respect that of others, though different, in this section of my treatise, it is my wish to state facts and leave inference to my readers.

Before proceeding, however, to discuss the political history of Pennsylvania, I must enter into some geographical investigation, and I must give a sketch of the biography of that wonder of human nature, William Penn.

To give the individual biography of any person, is not within the scope, and is in some degree incompatible with the nature of this work; but this man was in so many essential respects an exception to the ordinary course of human conduct, and his example has had so much of salutary effect on the affairs of the world, that a slight or transient notice would be inexcusable.

"William Penn," says Father O'Leary, "had the success of a conqueror, in establishing and defending his colony, among savage tribes, without ever drawing the sword; the goodness of the most benevolent rulers, in treating his subjects as his own children; and the tenderness of an universal father, who opened his arms to all mankind without distinction of sect or party. In his republic it was not the religious creed, but personal

merit, that entitled every member of society to the protection and emolument of the state."

These are the expressions of a Roman Catholic priest, and I firmly believe assented to by all mankind.

Sir William Penn, the father of the legislator of Pennsylvania, was a native of Bristol, and born in 1621; his mother was the daughter of John Jasper, a merchant of Holland. Sir William Penn was bred to the sea, and was raised to the rank of vice-admiral of England, at the age of thirty-one. He was the friend, companion, and adviser of James, Duke of York, afterwards James II. King of England, and had the honour to contend successfully against such men as Van Tromp and De Ruyter. This excellent man died at an early age, being only forty-nine at his death, at Wanstead, in the county of Essex, Sept. 16th, 1670.

William Penn, the immortal founder of Pennsylvania, was born in London, the 14th of October, 1644. His genius was so early developed, that at the age of fifteen he entered Christ's Church College, in Oxford. It was there, and at so early an age, that Penn contracted those opinions which so deeply affected his life and character.

Few proselytes has ever had the merit of this man. Heir to an independent fortune, connected with the most worthy, and exalted members of society, and supported by his father's rank, the hopes of honour, fame, and power, were founded on the most solid basis. In adopting the creed of the Friends, Penn had infinitely more danger to encounter than avoid. That his personal courage was of the firmest kind, was evinced in the manly, strong, and unembarrassed manner of his defence against bigots and persecution.

At the age of sixteen he was fined for nonconformity, and expelled the college. He did not at once renounce the emoluments of the world, and adopt the opinions and manner of an obnoxious sect, whose ethics were too exalted to suit the age. Ten years elapsed since William Penn had imbibed a portion of their doctrine, before he became a regular member of the Society of Friends. The most severe trial that this man had to meet in this mental revolution, was the opposition of a venerable and beloved father. Admiral Penn, habituated to the honours, and attached to the allurements of the world, beheld with regret and even indignation the change of religion in his son. All attempts at recalling his mind from the society in which he was associated, were vain. He was driven from his paternal home, but soon became reconciled to his father. He travelled into France, where he learned the French language, and contracted the polished manners of that nation. In his

22d year, he was sent to Ireland, where, at Cork, by the admonitory preaching of Thomas Loe, the struggle between the blandishments of the world and a sincerely exercised mind, was terminated, and William Penn became, in defiance of persecution, scoffs, and calumny, a Quaker. A prison was one of the first fruits of his conversion. He was liberated by the Earl of Orrery, then lord president of Munster. The epistolary remonstrance of Penn to that nobleman is extant, and is a splendid monument of the admirable equanimity of the writer, and an evidence of the value of the new member to a calumniated, misunderstood, and persecuted sect. After his enlargement, he was recalled to England by his father, where, after a long and severe, but abortive attempt to reclaim him to the national church and the habitual modes of the world, he was again driven from his father's house, and in bitterness of sorrow loaded with a parent's indignation. The feelings of nature were too true to themselves to permit his father continuing either his own personal resentment, or the exile of his son; and William Penn was recalled to his natural home.

In his 24th year, in 1668, he became a preacher and teacher of those doctrines which had so powerfully influenced his mind.

In the same year he was apprehended by a warrant, and committed to the tower of London. The moral courage of Penn, and his knowledge of the laws of his country, now shone conspicuous. The Bishop of London had the brutality to declare, that unless Mr. Penn recanted, he must die a prisoner. "All is well," replied the intrepid champion of his religious doctrines; "I wish they had told me so before, since the expecting a release put a stop to some business; thou mayest tell my father, who, I know, will ask thee, these words, that my prison shall be my grave, before I will budge a jot; for I owe my conscience to no mortal man. I have no need to fear; God will make amends for all."

From the prison he published his excellent treatise, *No Cross no Crown*, a little but imperishable testimony of his genius, purity of heart, and unshaken constancy, under affliction.

In 1669, he addressed a remonstrance to Lord Arlington, then principal secretary of state, by whose warrant he was committed. In this production we have to admire the elegant writer, the profound statesman, and unshaken Christian; and is a most astonishing contrast to the narrow and stupid bigotry of his oppressors. Its force was irresistible, and Wm. Penn was once more liberated after an incarceration of seven months.

In the latter part of the summer of 1669, he went to Ireland, and by his judicious and reiterated applications to men in

power, obtained the release of several individuals of his sect, confined for their religious opinions and practice.

In the year 1670, was passed the conventicle act, which imposed severe penalties upon meetings of the Quakers, and other dissenters. The weight of the restrictions fell with peculiar weight upon the heads of men determined not to submit to any deviation from duty as a compromise. William Penn was again imprisoned and tried; but his boldness, and correctness of defence, defeated the minions of power; and in defiance of a corrupt judge, the jury acquitted Penn, and once more he gained his liberty, and in the same year had to encounter one of the severest earthly misfortunes, the loss of his father.

In 1672, in his 28th year, he married Gulielma Maria Springett, daughter of Sir William Springett. He was now one of the most distinguished and leading members of his sect. His fine talents as a writer was of supereminent service to an unprotected and unresisting sect. In 1676, he became concerned in the settlement of west Jersey, as will be seen in the sequel. In 1677, he visited Holland and Germany, and wrote to the King of Poland in favour of his suffering friends. He was now become known to, and highly respected over all Europe.

After his return to England, he obtained a hearing before a committee of the House of Commons, where he plead the cause of his sect with so much ability, that a clause of relief passed that house, but was lost in that of lords by a prorogation of parliament, and the fierceness of persecution continued with all its violence.

Penn and his friends now turned their views towards America. A sum of money due him from the government, as part of the estate of his father, enabled him to procure a charter for what is now called Pennsylvania, which was granted March 4th, 1681, in which he was named full and absolute proprietor, and invested with the powers of government.

The first ship that sailed for Pennsylvania from England, arrived where Chester now stands, December 11th, 1681. Penn arrived himself at New Castle, October 24th, 1682, where he was received by all the inhabitants, Swedes, Dutch, and English, with joy and gladness. Pennsylvania was never a source of emolument, or even personal gratification to the proprietor. The two proprietaries of Maryland were involved in a dispute concerning boundaries which occupied their attention all their lives, and distracted both colonies for more than 80 years. Penn and Calvert had a meeting in Maryland, which ended in producing neither settlement or concession. On his return to

the Delaware, Mr. Penn made choice of Coaquannock, between the Delaware and the Schuylkill, where he laid out and named Philadelphia; formed treaties with the Indians which preserved his colony in peace.

He remained in Pennsylvania, New Jersey, and Delaware to 1684, when his dispute with Calvert, and some other urgent business, compelled him to return to England, leaving the government in the hands of the provincial council.

His residence in England was as usual employed in shielding the oppressed of all sects, and in defending the interest of his colony against the attacks of the agents of Lord Baltimore.

The personal friendship known to exist between James II. and Wm. Penn, was severely injurious to the latter after the revolution in 1688. July 18th, 1690, he was imprisoned on a charge of high treason, from which he was cleared and set at liberty. His intentions were to again return and end his days in the land of his choice, but increasing difficulties crowded upon him, and prevented the fulfilment of his wishes. In 1692, he was deprived of his government over both Pennsylvania and the territories, as Delaware was then called. In 1693, he made his innocence appear, and procured the restoration of his rights; but old age, increasing difficulties, and domestic misfortunes, taught the world in the example of Penn, that even the most exalted virtue is no guaranty against calamity in this life. In 1693, he lost his first wife, and in 1695, married his second, the daughter of Thomas Callowhill.

After years of trouble and anguish in England, Penn returned to Pennsylvania in 1699. His anxious desire to end his life in America was again frustrated, and in 1701 he returned to Europe to revisit Pennsylvania no more. The incidents of his life not noticed in this short sketch, and connected with Pennsylvania, will appear in the course of our investigation of the history of that colony. He retired to Rushcomb in Buckinghamshire, where, on the 5th day of July, 1718, he closed his truly admirable mortal life, in his 74th year.

It would be folly to claim for William Penn a character incompatible with the inherent infirmities of human nature; but to say that amongst the men who have given lustre to the species, not one can claim a superiority over the legislator of Pennsylvania. During a life spent in persecution, and in many instances under the pressure of real distress, his active benevolence knew no abatement. When confronted with power, prejudice, and insolence, he stood unappalled, sedate, calm, and collected, and gave the second strongest example of meekness united to moral courage.

In Pennsylvania, to say he is entitled to the gratitude, and I
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might say, almost adoration of her citizens, is not too much. He is embalmed in our hearts, and will be so, as long as a generous feeling remains, to warm and soften the last lingering pulse of expiring life.

The causes which gave to Pennsylvania its present form, are now to be developed.

The charter of Pennsylvania, defining the south boundary of that colony, expressly states, "on the south, by a circle, drawn at twelve miles distance from New Castle, northward and westward, unto the *beginning of the fortieth degree of northern latitude*; and then by a straight line westward," &c.

In the specification of limits between the two colonies, there was some plausible ground of contention; but, the Maryland charter being expressly granted for lands only inhabited by Indians, therefore the proprietaries of that colony had no right whatever to substantiate their assumption of jurisdiction over the Swedish and Dutch settlements on Delaware, which, so far from being granted, was actually excepted by the charter under which their encroachments were made.

Whatever might be the merits of the case on either side, a long, vexatious, and bitter contest, between the colonies of Maryland and Pennsylvania, arose from the first attempt to act upon the charter of the latter.

William Penn arrived from England, at New Castle, October 24th, 1682, and after transacting some necessary arrangements in his own colony, proceeded to Maryland, in order to confer with Lord Baltimore, and to adjust their common limits. The meeting of the proprietaries was friendly; but it does not appear to have produced any beneficial effect, as respected its primary object, since the agent of Lord Baltimore, in 1683, petitioned king Charles II. "that no fresh grant of the land in the territories of Pennsylvania might pass in favour of William Penn, till the said lord was heard on his pretension of right thereto; which petition was referred to the lords of the committee of trade and plantations: these, after many attendances and divers hearings of both parties, made their report to king James the II.; who, in November, 1685, by an order of council, determined the affair between them, by ordering a division to be made, of all that tract of land between Chesapeak and Delaware bay, from the latitude of Cape Henlopen, to the south boundary of Pennsylvania, into two equal parts; of which that share on Delaware was assigned to the king, and that on Chesapeak to the Lord Baltimore."*

The order in council, upon which this division was made, is a document of great importance in our colonial and state his-

* Proud's Pennsylvania, i. 293.

tory—determining the contested limits of three states (then colonies). I have therefore deemed it necessary to insert it.

“ Whitehall, this 13th day of November, 1685.

“ Présent,—The King,” &c.

“ The following report from the right honourable, the lords of the committee for trade and foreign plantations, being this day read at the board, &c. The substance of the said lords’ report we find, that the said lands intended to be granted by the Lord Baltimore’s patent, were only cultivated and inhabited by savages; and that the part then in dispute, was inhabited and planted by Christians at, and before, the date of the Lord Baltimore’s patent, as it had been ever since, to that time, and continued as a distinct colony from that of Maryland; so that the lords offered it as their opinion, that, for avoiding further differences, the tract of land lying between the river and bay of Delaware and the eastern sea on one side, and Chesapeake bay on the other, be divided into two equal parts, by a line, from the latitude of Cape Henlopen, to the fortieth degree of north latitude; (the south boundary of Pennsylvania by charter,) and that one half thereof, lying towards the bay of Delaware, and the eastern sea, be adjudged to belong to his majesty, (viz. to king James, who granted it to W. Penn, when duke of York,) and that the other half remain to the Lord Baltimore, as comprised in his charter.”*

Thus stood the affair of boundaries between Maryland and Pennsylvania, until 1732. The reasons why the order of council of 1685, was not acted upon in the interim were, the continuation of the original dispute respecting the fortieth degree of N. lat., Maryland contending that the expression in its charter, “to the fortieth degree, meant forty degrees complete;” the assembly and proprietaries of Pennsylvania, on their part, insisting that, in the charter of Pennsylvania, the expression, “to begin at the beginning of the fortieth degree of N. lat. ought to be construed to be where the thirty-ninth degree was completed.” This was a very serious dispute to both parties, as it involved a parallelogram sixty-nine and half miles wide, and more than 200 miles in length, or about 6000 square miles of surface. In urging his pretensions, the proprietor of Maryland was, in a great measure, contending for the existence of his colony; since, if the claims of the Penn family had been carried into effect, all Maryland, north of Annapolis, would have been in Pennsylvania, and the south boundary of the latter would have reached to within five or six miles of Washington city. On the other hand, had the pretensions of Maryland succeeded, the spot where Philadelphia stands, would have been included within the limits of that colony.

* Proud’s Pennsylvania, i. 293.

The clashing pretensions, and equitable demands of both parties, produced in 1732, a compromise. In the month of August of that year, Thomas Penn, one of the proprietaries, arrived in Pennsylvania, one of the first acts of whose administration was to carry into effect a commission, previously signed, May 12th, 1732, by him and his two brothers, John and Richard Penn; directed to governor Gordon, Isaac Norris, Samuel Preston, James Logan, Andrew Hamilton, James Steel, and Robert Charles, appointing them, or any three or more of them, to be commissioners on their part, to meet those of Maryland, in order to determine, survey, and mark the respective boundaries in controversy. An instrument of the same tenour and date was executed by Lord Baltimore, directed to Samuel Ogle, Charles Calvert, Philemon Lloyd, Michael Howard, Richard Bennit, Benjamin Tasher, and Mathew Tilghman Ward, appointing them, or any three or more, on his part, for the same intent and purpose with those named on the part of Pennsylvania.

These commissioners were respectively named in virtue of an agreement made and countersigned between the proprietaries of the two colonies, dated May 10th, 1732, to the following purport: "That a due east and west line shall be drawn from the ocean, beginning at Cape Henlopen, which lies south of Cape Cornelius upon the eastern side of the peninsula; and thence to the western side of the peninsula, which lies upon Chesapeak bay, and as far westward; for a dividing point between the two proprietaries, as the exact middle of that part of the peninsula, where the said line is run."

That from the middle point on the east and west line, another should be extended, running up the peninsula, so as to touch the extreme west part of a circle; twelve miles radius, drawn from the centre of the town of New Castle, on the bank of Delaware river. That from the point where the last mentioned division line makes a tangent with the arc of the semicircle around New Castle, that another line shall be extended due northward so far as that parallel, which is fifteen English statute miles, south of the most southern part of the city of Philadelphia. That, lastly, in the said parallel of latitude, fifteen miles due south from Philadelphia, and from the northern end of the last mentioned north and south line, a line shall be run due west across Susquehannah river, to the western boundary of Pennsylvania; or so far, at present, as is necessary, which is only about twenty-five miles to the west of said river. Which lines, when surveyed and marked, to be and continue the permanent boundary between Maryland and Pennsylvania, and the territories of the latter.

That each party should appoint commissioners, not more than

seven, any three of which should be empowered to act, in determining the boundaries in dispute; to commence in October, 1732, and to complete their operations on, or before, 25th of December, 1733. The party defaulting to pay to the other six thousand pounds sterling.

The commissioners met, but differing in opinion respecting Cape Henlopen, separated without effecting any part of the object of their meeting. Difficulty created delay, whilst the inhabitants, who had settled near the places where the lines of separation were supposed would run, were subjected to vexatious demands from both colonies; the ordinary process of justice was interrupted, and the tenure to landed property rendered insecure. The obstructions to a termination of the contested admeasurement arose chiefly from Lord Baltimore; the Penn family were evidently sincere in their attempts to close the affair on the terms of the agreement. In 1735, the Penns instituted a suit, by exhibiting a bill in the chancery of Great Britain, against Lord Baltimore, praying the terms of the agreement of 1732, may be decreed to subsist, and be carried into execution. This procedure had the usual fate of chancery prosecutions. On May 15th, 1750, fifteen years after its being filed, the lord chancellor Hardwick decreed upon the bill;—that the articles of May 10th, 1732, be carried into execution, and that proper commissioners be appointed, who are to commence their operations in November, 1750; and who shall report on or before the last day of April, 1752, according to the principles of the agreement of 1732. The chancellor further decreed, that the circle around New Castle be a radius of twelve English statute miles; and that Cape Henlopen be deemed the place of beginning on the Atlantic Ocean.

The commissioners met, pursuant to appointment, November 15th, 1750, at New Castle; but disagreed respecting the mode of extending the arc of a circle around that town, and finally separated without performing any part of their duties.

Twelve years again elapsed, before any efficient attempts were made to close this tedious process. Finally, in 1762, the respective proprietaries agreed to employ Charles Mason and Jeremiah Dixon, two eminent mathematicians, who had recently returned from the Cape of Good Hope, where they had went in 1761, to observe a transit of Venus over the sun's disc. These two able surveyors executed the operation, and, from Cape Henlopen to twenty or thirty miles west of Susquehannah river, marked the boundaries between Delaware, Pennsylvania, and Maryland, and closed a troublesome colonial litigation of eighty years.

In thus tracing the chain of events which gave to Pennsylvania its form, I have anticipated that part of its history. This

course was adopted in order to prevent dry discussions on boundaries, from interrupting the thread of political history. In fact what is given in Nos. 1 and 2 of the Repository, cannot be considered only as prefatory to the real history of Pennsylvania; and did the limits assigned to the subject admit more extended detail, the preliminary remarks might be much more extended. The very remarkable features of the age, and particularly the rise and establishment of the society of Friends, might have been appropriately introduced; but my desire to confine myself as much as possible, to the affairs of America, forced me to leave untouched some very interesting matter.

My reasons for introducing the two following subjects must be obvious. In my extract from Chalmers,* I there show on the authority of that author, that it was in the cotemporary history of Massachusetts, that we are to seek the causes which induced a bigoted, arbitrary, and profligate monarch, to grant the liberal constitution of Pennsylvania. A brief sketch of the cotemporary history of Massachusetts, is therefore laid before the reader, in order to develop those causes; and they are found in the navigation laws of England, which Massachusetts always resisted.

In order to secure the full establishment of those laws, in an American colony, the court of England was willing to concede any other request of any man or body of men, entering upon the establishment of such colony.

My reasons for delineating what I conceive to be the real causes of the failure of all attempts to civilize or to save the Indians, will be seen by reading the concluding part of this section.

Therefore, as I have already twice observed, it was only in the cotemporary history of Massachusetts, that the principles on which the charter of Pennsylvania could have emanated from the English government under such men as the Stewarts. Before proceeding with the chain of events which followed the establishment of colonial government in Pennsylvania, it will be necessary to recur for a moment to the affairs of her sister colony.

During the interregnum in 1651, the parliament of England passed the great navigation act. This legislative procedure had more direct and lasting effect upon the American colonies of England, than any law of that government during the existence of colonial dependence. I might have before noticed, that the effect of the fiscal arrangements under James I. diverted the colonial trade from Virginia to Holland. As the other colonies to the northward rose into consequence, this course of things became more apparent, and in 1651, eventuated in the famous

* See page 86.

navigation act. As this act had so great an influence on the prosperity of the colonies, I have deemed it necessary to be a little more particular than ordinary.

It had been observed with much concern, that the English merchants, for several years past, had usually freighted the *Hollanders'* shipping for bringing home their own merchandise, because their freight was at a lower rate than that of the English ships. For the same reason the Dutch ships were made use of, even for importing American products from the English colonies into England. The English ships meanwhile lay rotting in the harbours; and the English mariners, for want of employment, went into the service of the *Hollanders*. These considerations, principally, induced the parliament to enact, "That no merchandise, either of Asia, Africa, or America, including also the English plantations there, should be imported into England in any but English built ships, and belonging either to English or English plantation subjects, navigated also by an English commander, and three-fourths of the sailors to be Englishmen. Excepting such merchandise as should be imported directly from the original place of their growth or manufacture in Europe solely: and that no fish should thenceforward be imported into England or Ireland, nor exported thence to foreign parts, nor even from one of their own home ports, but what should be caught by their own fishers only."

This act did not only form an epoch in our colonial history, in that of the commercial affairs of England, but in the entire, fiscal affairs of mankind. It was this navigation act, more than any other circumstance, that made England what she has been. Dr. Robertson (ix. III.) speaking of this act observes—"Not satisfied with taking measures to subject the colonies, the commonwealth turned its attention towards the most effectual mode of retaining them in dependence on the parent state, and of securing to it the benefit of their increasing commerce."

The dependence of the colonies was indeed secured by the act of 1651, and had all future measures of the parent state been equally politic and well timed, that dependence would never have been broken. The navigation act was, however, always an extremely obnoxious measure in the colonies, and Massachusetts firmly and steadily resisted its provisions.

After years of distrust and encroachment on the one hand, and equal distrust and resistance on the other, Massachusetts and other New England colonies were in 1675, involved in a sanguinary war with the savages. This war was closed in August, 1676, by the death of the Indian general, King Philip.

The death of Philip closed the war, as the Indians speedily submitted. But the termination of the war did not remove the difficulties under which the New England colonies had to

struggle. They were impoverished, and involved in debts to a very serious amount. In this distressing situation, the merchants and manufacturers in England, complained of colonial infringements in the acts of navigation. In consequence of these complaints, the governors of the colonies were directed by royal authority, to enforce obedience to those laws. These royal restrictions were carried so far as to deny Mediterranean passes to the New England vessels, until it could be seen what share of obedience could be expected from its inhabitants.

Agents were sent from Massachusetts to England, where they remained many years, without removing the difficulties between the parent state and the colonies. In 1679, respectful addresses were sent to the king, but compliance with the acts of trade was evaded, or openly opposed, as infringements on the rights of the colonies, as they were not represented in the English parliament. Edward Randolph, who came over as custom house officer to Boston, was treated as an enemy, and opposed with steadiness by men determined to defend their chartered privileges. Randolph remained, however, in America, and having in 1682, written to the government of England that his life was threatened, in virtue of an ancient law of Massachusetts, as a subverter of the constitution, that colony was threatened with the great instrument of royal vengeance, a *quo warranto*; and her agents in England now wrote to the general court that their cause was desperate. Accordingly in June, 1683, articles of high crimes and misdemeanours were presented by Randolph against the corporation, and an order of council was passed on the 6th of July, for issuing a *quo warranto* against the charter of Massachusetts; with a declaration from the king, that on their submission and an entire resignation to his pleasure, he would regulate their charter, with no farther alterations than what was necessary to the support of his government over the colony. Submission not being made, the *quo warranto* was brought to Massachusetts in October by Randolph; and on the 18th of June, 1684, the high Court of Chancery in England gave judgment for the king against the governor and company of Massachusetts. By this judgment, the charter was declared forfeited, and their liberties seized into the king's hands. Col. Kirk, of infamous and opprobrious memory, was appointed governor general over Massachusetts, New Hampshire, Maine and Plymouth; but before his commission and instructions were finally settled, Charles II. died on February 16th, 1685, and of course the commission of Kirk was annulled, and in all human probability New England was saved from becoming a scene of bloodshed and desolation.

James II. succeeded his brother on the 18th of February,

1685, and continued the system of tyrannical measures against the colonies. On the 20th of April, the new king was proclaimed in Boston. In July, a writ of *quo warranto* issued against Connecticut; and a similar writ was in October issued against Rhode Island. On the 8th of October, the king named Joseph Dudley, a native of Massachusetts, president of New England. The royal commission was received on the 18th of May, 1686, and published on the 25th of that month. The presidency extended over Rhode Island, Plymouth, Massachusetts, New Hampshire and Maine.

But the hour of vengeance at last arrived; on the 16th of February, 1689, William, Prince of Orange, and his wife, Mary, daughter of James, were declared king and queen of England. The news of the revolution in England produced another at Boston, even before any certain intelligence reached America, of the abdication or dethronement of James II. The people of the colony no sooner heard of the landing of the Prince of Orange in England, than, exhausted by the impositions of the royal government, they flew to arms. A rumour had spread that a massacre was intended by the governor's guards, which received a more easy credit from orders having been issued, for the people to hold themselves in readiness to oppose the landing of any troops sent by the Prince of Orange. On the morning of the 18th of April, 1689, Boston was in arms; the people of the country poured in to their aid. Governor Andros and his minions were seized and confined; and the castle on Castle Island taken. Old Governor Bradstreet was restored; the charter resumed, and a general court convened. May 22d, the representatives of fifty-four towns met, and it was by their decision the charter, and the officers under it, were again called into operation. On the 24th the governor and magistrates chosen in 1686, entered into a written compact, declaring their acceptance of the care and government of the people, according to the rules of the charter, until by direction from England there be an orderly settlement of government. On the 29th of May, William and Mary were proclaimed with great ceremony in Boston. Addresses were sent to the king. Application was made for express authority to execute the duties of government under the charter. This privilege was obtained.

When the people of Massachusetts had thus resumed their old charter, they petitioned for its renewal with a few modifications; but this they could not obtain, and a new charter was granted. May 14th, 1692, Sir William Phips arrived at Boston, with a new charter and a royal commission constituting him governor. The charter and governor's commission being

read, the new governor installed, and the venerable old Governor Bradstreet having resigned, the new government went into operation, if not by the good will, without opposition from the people.

The province designated by the new charter, contained the whole of old Massachusetts colony, to which were added the colony of Plymouth, Maine, and Nova Scotia; and all the country between Maine and Nova Scotia to the St. Lawrence river, and also Elizabeth's islands, Martha's Vineyard, and Nantucket.

The changes made in the form of government were material. Under the old charter, all the magistrates and officers of state were chosen annually by the General Assembly; by the new charter, the governor, lieutenant-governor, secretary, and all the officers of the admiralty, were to emanate from the crown. Under the old charter, the governor had little more share in the administration, than any other of the assistants. He had under the old charter, power to convene a general court; but could neither adjourn, prorogue, remove, or dissolve it. To such acts a vote of the whole by majority was necessary. Under the old charter, civil and military officers were elected by the court, and merely commissioned by the governor. Under the new charter, there was to be an annual meeting of the general court, the last Wednesday in May; but the governor might discretionally call an assembly, at any other times, and adjourn, prorogue, and dissolve it at pleasure. No act of government was to be valid without his consent. He had, with the consent of the council, the sole appointment of all military officers, and of all officers belonging to the courts of justice. Other civil officers were to be appointed by the court; but the governor had a negative on the choice. No money could now issue from the colonial treasury, except under the governor's warrant, with the advice and consent of his council.

Under the old charter, the assistants or counsellors were elected by the votes of all the freemen in the colony, and were not only, with the governor, one of the two branches of the legislature, but the supreme executive court in all civil and criminal causes, excepting those cases where, by the laws, an appeal to the general court was allowed. The new charter provided, that, on the last Wednesday of May annually, twenty-eight counsellors should be newly chosen by the general court or assembly. The representatives, under the old charter, were elected by freemen only; under the new charter, every freeholder, of forty shillings sterling a year, was a voter, and every inhabitant, who had forty pound sterling personal estate.

The new charter contained nothing of an ecclesiastical con-

stitution. With the exception of Roman Catholics, liberty of conscience, which was not mentioned in the first charter, was by the second expressly granted to all.

The introduction of this episode on the history of the New England colonies, and particularly that of Massachusetts, I have already excused. The sketch shows at a glance the meaning of Chalmers, quoted in page 86, and enables the reader to advance on a wider path in his researches into the history of Pennsylvania. The subsequent proceedings in New England, at and after the revolution of 1688, explains also the true causes of the vexations and persecutions Wm. Penn received from the house of Orange.

Before proceeding with the thread of our subject, I am once more compelled to claim the patience of my reader, by introducing another episode—a moral view of the Aborigines of America. If I could not have spoken on this topic in a great measure from personal observation, I should not have dared its introduction.

One of those peculiarities in the life and legislation of William Penn, was his treatment of the savages found in his colony, but I am sorry to be compelled to doubt, whether any mode of treatment short of conquest can save savage tribes amongst a civilized people. The modes of policy used by the various English North American colonies differed essentially; but the poor naked savage every where disappeared. In Virginia, Massachusetts, Connecticut, New York, Pennsylvania, &c. this fatal effect marks savage history. I have myself been much amongst savages, and close the second section of this number by some observations on that state of society in America generally.*

The first and most striking fact respecting the condition of the natives of America, on the arrival of the European colonists, was the extreme difference in point of civilization, between the nations residing along the Atlantic and Pacific oceans. Upon the Atlantic, the human species was every where found in the savage state: some difference did exist in their modes of society; all was not equally rude; in some islands of the West Indies the dawn of cultivation could be perceived, but every where else man was truly savage.

On the Pacific, beside some tribes of less note, were found at an immense distance from each other, the nations of Mexico and Peru, in many most essential respects truly civilized. We are in the less danger of viewing these two nations in a too favourable light, as most we know respecting them, is drawn

* I have introduced these remarks from having, in the future numbers, to introduce the savages of Pennsylvania so often.

from their worst enemies, their discoverers, conquerors, and in a great measure their destroyers.

My observations on the general character of the native American must, from the nature of my subject, be brief. As it respects the savage part of the population, little can be said. The character of man in that state is necessarily so uniform, that the aspect of various tribes may differ in the colouring of their manners, but the texture must be every where nearly similar. If we cast a glance upon the savage of Canada, we see the general appearance of the savage of Terra Magellanica.

Few subjects have been more extensively treated, and few on which sound information has been more seldom received, than upon the character of the American savage. In the shape of science, I know of nothing more futile, than the discussions of an European philosopher on the subject of the savages of this continent. With some of these system-mongers, our natives were exalted above the level, and by others depressed below the standard of, human nature. I shall not detain my reader by examining the opinions of either, as I am fully convinced that neither deserves a moment's attention.

Before, proceeding farther, I may be permitted to express regret, that the continent and its neighbouring islands, had not been discovered by men more advanced themselves in the true principles of civilization, and by men more conversant in, and more attentive to, the abstract nature of the human mind. If such had been the case, much of the horrors we have now to retrace would have been avoided.

In an inquiry into the condition of any people, the first object is the state of the arts by which the wants of man are supplied, and his comfort secured.

The first of all arts is that of agriculture. Domestication of vegetables is the first step to the attainment of settled residence, and the relinquishment of the nomadic state. The savages of America had, generally, advanced thus far. They had in most instances adopted the culture of some species of vegetables; of the cereal gramina, Indian corn was reared over a very large extent of this continent. In the regions without the tropics, maize was to the native nations what the entire family of cereal gramina is to the inhabitants of Europe, Asia, and civilized America. Within the tropics, the articles of food cultivated by the savage tribes were more numerous than in colder regions, but the principal was the banana (*Plantana arton*).

"I doubt," says Humboldt, "whether there is another plant on the globe, which on so small a space of ground can produce so considerable a mass of nutritive substance."

The produce of bananas, according to this author, is to that of wheat as 133.1 ; to that of potatoes as 44.1 ; and in their respective value as food, in the relative numbers, each article will support, wheat 1, potatoes about 2, and bananas 25.

From this statement, if uninfluenced by any other cause except the difficulty or facility of procuring mere subsistence, the savage tribes within the tropics ought to have very greatly exceeded in numbers on an equal space, those residing in more northern or southern, and of course more rigorous climates. This was actually the case, as the causes which impede the increase of savage population were common to all.

That the early Spanish writers did most egregiously exaggerate the numbers of the American nations, both civilized and savage, I could never doubt; but that there did exist in some of the West India islands a population much more dense than is commonly found amongst savages, I also cannot doubt.

In every instance, particularly on the continent without the tropics, landed property was held in community. The tribes had not even advanced as far as the feudal principle of holding land in seignior, or lordships. In such a state of society, improvement beyond the simple attainment of food could not take place. In the islands, where destructive war was not frequent, human beings were more stationary than on the continent, where, either dread or thirst of vengeance created unceasing agitation.

The accessory arts of habitation and husbandry, have in all ages preserved a very nearly equal advance. The house or wigwam of the savage is rude in the extreme; sometimes made of skins or other portable material, which was removed as inclination or necessity might influence the owner; most commonly, however, the savage tribes constructed their cabin of such materials as they found at their various points of migration, and were used as long as the architect thought proper, and then abandoned. Over the yet savage part of our continent, these transient abodes are every where to be seen, where the savages frequent for hunting, fishing, or to cultivate their corn and pulse.

Some partial exceptions existed, as some of the tribes resided in settled villages; but in the strict sense of the word, the savage nations along the Atlantic ocean had not advanced so far, as to transmit from generation to generation the respective parcels of land. The tribes had in the country they claimed, villages, where their chiefs resided, and where was situated the cemeteries of their dead; but the entire abandonment of a village, from often mere caprice, was very common. This custom of frequent removal, and want of attachment to parti-

cular places, continues to this day to mark the character of the American savage. In their negotiations with the government of the United States, we seldom hear the Indians plead local attachment; but alive to their views of convenience, few people more correctly appreciate the value of land, if taken as the joint property of a community formed on the ordinary principles of savage life. While game remains abundant, they tenaciously hold possession of the most sterile waste; but as soon as the game is destroyed, or becomes rare, the most fertile soil is relinquished with indifference.

Before the arrival of Europeans, the implements of husbandry amongst the savages were to the last degree defective. If their inclination had led them to remove the forest, and form the cultivated field or orchard, they had not the means. Lost in the gloom of an endless expanse of woods, their partial spots of cultivated land were mere specks; therefore, the aboriginal nations which inhabited the Atlantic border of the United States, could not be considered as having so far progressed in the arts of life, as to entitle them to the second rank of improved human beings.

Some little agriculture they did practise; but they were intrinsically *hunters*. To the chase they owed the greatest part of their subsistence, and their entire clothing. With the loom, spindle, wheel, or any other implement to manufacture cloth, they were utterly unacquainted. They had not the use of, much less the knowledge of forming any metallic matter. In the formation of their hunting materials, this rude race exhibited that plastic ingenuity, which has ever distinguished man in the construction of the primary objects of his care. Equally addicted to war and hunting, the same weapon which served the Indian to procure food for himself and family, served him also in the defence against, or annoyance of enemies. In the exercise of those two almost exclusive pursuits of the savage, he evinced alike patience, silence, and skill. Of all living animals of equal volume, an Indian is the one which moves through the recesses of the woods with most caution and least noise. The most wild and fleet animals were victims to the perseverance and stillness of the savage hunter. Often an entire flock of deer fell beneath the shafts of an unseen destroyer, whilst the whistling of the arrow, or the rustling of the winds, were the only sounds which disturbed the lonely silence of the forest.

It was nevertheless in the pursuit of vengeance, where all the latent powers of the Indian was called into action. It has been observed with much surprise, that the savage thirst of blood was a principle of action stronger than self preservation;

and that consequently where two tribes were engaged in attack and defence, those on the side of attack almost uniformly evinced most courage, activity, self-denial in the endurance of fatigue; were more watchful, more vigilant, and better prepared to take instantaneous advantage of circumstances; and where every thing else were equal, much oftener successful in the accomplishment of the object on which they were engaged.'

Much controversy has been had upon the domestic affections of the savage. Some 'have given him sensibility of feelings incompatible with his modes of life; others have on the contrary denied him those sentiments of tenderness, which seem to be a necessary attribute of animation. How far the Indian character has changed since the first arrival of Europeans, I am unable to determine, but am inclined to believe that they are now in a moral point of view, if any difference, in a worse state than before the discovery; and if so, those have libelled them, who consider them devoid of the feelings of family affection. I have been much amongst various tribes of Indians, and from all I could ever observe, their attachments appeared as warm as the nature of their society would admit. Divided into small communities, detached from general intercourse, the Indian lives but for his tribe and family. National sentiments he could have none, and employed in the chase, his mind was vacant and feelings blunt. In most instances the active population was kept constantly on the alert; therefore but little time was left for the indulgence of the softer feelings, allowing them to exist. The positive is a better mode than the negative, to estimate the character of either men or nations, and if that principle is adopted, the native character of the American savage appears to much advantage. He spared no fatigue to procure subsistence for his family, nor shrunk from any danger in their defence. If any individual of his tribe fell by the hand of an enemy, no time could efface the recollection, no labour, abstinence, or deprivation too great to procure reprisal.

All the fair traits of the savage character were, however, concentrated in his domestic circle.

Viewed politically, the aspect of the savage state is horrible in the extreme. The sentiment of freedom was, and continues, so strong amongst the natives of this part of America, as to unfit them for subjection to the ordinary restraints of society in its rudest state. From this cause unruly individuals are enabled to involve the neighbouring tribes in almost unremitting war. It was at all times a law of nations with them, that the whole of a tribe was accountable for the conduct of each member; consequently, when murder was committed, the innocent was almost sure to be sufferers, as the real culprits were guard-

ed by their consciousness of guilt. Increase of population, national association, or any other effectual step towards permanent civilization, was by these means rendered impossible. Nothing was more frequent than the entire massacre of a tribe. The Indian, in brief, as he was found by the English on this coast, might be literally said to be constantly in motion. The carrying of heavy burdens, indeed active labour of all kinds, hunting excepted, fell to the lot of the female. Care of their children was in most cases rendered extremely difficult, in some instances the strongest tie of human nature was broken, and the mother left her infant to perish. There are very few general customs amongst mankind, but which I believe may be traced to necessity. The custom of the savage leaving to his mother, his wife, sister, or daughter, the task of domestic drudgery, and when marching from place to place, of carrying the entire baggage, I have no doubt, was in the first instance caused by the necessity of the man being every moment ready to use his arms against his enemies. But like all customs, this was carried beyond the predisposing cause, and at length the savage warrior considered himself degraded by sharing those fatigues, which his ancestors were forced to omit from constant dread of danger.

Whatever, however, may be the original causes, the condition of infancy, old age, and female weakness, amongst savages is to the last degree deplorable. I have always considered the civilized state as the only one where the tender charities of life can be exercised. When environed by never ceasing danger, where hunger, thirst, and cold are amongst the least of human evils, and where life itself is a tenure held with the utmost uncertainty, the heart must become callous. Such is the savage state, such it always was, and ever will be. If men gain a few things by the change from the savage to the civilized state, women gain every thing. I know of no two conditions of human nature, where the difference is so extreme, as that of women in the two grades I have noticed. In one she is a degraded slave, in the other an adored and beloved companion.

Wretched, nevertheless, as is the savage state, it is that condition from which men are drawn with the most difficulty. Miserable and uncertain as may be the life of the native hunter, it is a life possessing its peculiar seductions, and habit reconciles the mind to its asperities.

SECTION III.

STATISTICS.

Fifth General Report of the President and Directors of the Chesapeake and Delaware Canal Company.

At a General Meeting of the Stockholders of the Chesapeake and Delaware Canal Company, held at their office, in the City of Philadelphia, on the 7th of June, 1824, the President and Directors presented a full and distinct Report of their proceedings and accounts during the last year, and it was

On Motion, Resolved unanimously, That the Report this day presented is approved, and that the thanks of the Stockholders be presented to the President and Directors for the faithful performance of their duties.

Resolved unanimously, That the President and Directors cause the said Report to be published.

MATHEW CAREY, *Chairman.*

Chesapeake and Delaware Canal Office, June 7th, 1824.

At an Election, held at the same time and place, the following gentlemen were elected for the ensuing year:—*President*—James C. Fisher.—*Directors*—Thomas P. Cope, Paul Beck, jun. George Gillasspy, Isaac C. Jones, John K. Kane, Robert M. Lewis, Caleb Newbold, jun. Silas E. Weir, Robert Wharton.

REPORT.

The President and Directors of *The Chesapeake and Delaware Canal Company*, on surrendering their delegated trust into the hands of their constituents, respectfully submit the following brief review of their proceedings.

On the revival of the company, and the election of a new board, in the early part of 1822, the Directors, deeply impressed with the responsibility of their station, and the interesting duties which had devolved on them—aware also of the injurious consequences which would result, not merely to the stockholders, but to the public, from another failure of this important work, determined to proceed with much caution,—to avail themselves of every practicable means of information, both local and diffusive; and to take no step without previous deliberate consideration, and the exercise of their best judgment.

A correspondence was forthwith commenced with distinguished citizens of New York, who had been actively engaged in their celebrated canals; the books of the company were or-

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dered from Delaware to Philadelphia; measures were adopted for procuring legislative aid from the states of Delaware, Maryland, and Pennsylvania, and from Congress; the old stockholders were called on to pay five dollars on each share subscribed by them, in order principally to ascertain such as were willing to continue members of the company;* new books for receiving subscriptions were opened; and, so early as March, 1822, a committee, aided by the best scientific talents within the immediate reach of the board, were ordered to the canal ground, and directed to re-survey the line of canal which had been adopted by their predecessors—to examine the condition of the feeder—to explore and take soundings of the river Elk, from Frenchtown to Back creek, and of Back creek—to run levels between the latter and the river Delaware—to examine the western shore of the Delaware, from opposite the Pea Patch to Newcastle; and generally, to explore the whole canal ground, with a view of ascertaining whether any better route than the old one could be discovered.

In pursuance of these instructions, and in the course of these examinations, it was ascertained that the soil was generally composed of a mixture of gravel and clay, being admirably compacted for canal purposes—that the water of the Delaware at Newbold's landing, about six miles below Newcastle, is sufficiently deep, and the shore bold, and otherwise favourable for the debouche of a canal—that the intermediate shore, between that and Newcastle, is a cove of shoal water, in which the action of the tides is constantly depositing fresh sediment—that Back creek, from Welch Point to Broad creek, appears to be as eligible for navigable purposes as the Elk from the same point to Frenchtown—that the Elk was the principal stream designed to feed the old canal, projected on a plane of seventy-two feet above tide water, and twenty-four miles in length—and that a depressed level was practicable, and would enable the company to draw supplies from other streams.

A new line of canal, commencing at Newbold's landing on the Delaware, to Ford's landing on Back creek, the whole distance across being about fourteen miles, was surveyed at this time. The summit level was assumed at sixty-four feet elevation, making a deep cut of about twenty feet on the dividing ridge, and the canal requiring eight locks, of about eight feet lift, on each end. A dock or basin, extending about 250 feet into the Delaware, was proposed as a part of this plan; and a dam was to be formed across Back creek, above the mouth of

* Most of this stock, on which the \$5 were not accordingly paid, standing chiefly in the names of deceased persons, or insolvents, was recently sold by public auction at the Merchants' Coffee House in Philadelphia, pursuant to orders of the Board.

Long creek. The Elk feeder was to be extended about three miles from its present termination. White Clay creek was also to form a feeder, and reservoirs were to be created to aid the supply.

These surveys were rapidly succeeded by others; and in the month of December following, a gentleman of experience was engaged to examine the ground between Newbold's landing and Back creek, with the more immediate object of ascertaining the practicability and expense of a thorough-cut, a project which had been frequently suggested, and which had obtained many friends.

Five new lines of canal were on this occasion carried across this section of the peninsula, from the Delaware to the waters of the Chesapeake; previously to which, the board possessed no record of surveys or levels for a space nearly eight miles square, extending from Port Penn northerly to Hamburg, and from the river Delaware westwardly. The line principally relied on, in these surveys, commences on the Delaware, nearly opposite the Pea Patch, and, passing across Dragon or Cox's Neck, and St. George's meadows, pursues the valley of St. George's creek to within $\frac{1}{2}$ of a mile of Lum's mill-dam—thence, following the valley of Racoon run, to near the Buck tavern, crosses the dividing ridge, continues along the valleys of Broad and Back creeks, and debouches at Sandy Point,—being sixteen and a half miles in length, and designed for a thorough-cut.

As it had become very important to ascertain the nature of the earth of which the dividing ridge is composed, and as no steps had hitherto been taken for that purpose, directions were given to sink shafts and bore the ground to the requisite depth, and to continue the borings across the St. George's meadows. Competent persons were engaged for the service, and many months were consumed by them in this indispensable labour. The borings on the ridge were extended to the depth of fifty-three feet, and consisted of gravel, sand, and clay. On the St. George's meadows, stiff clay was found to the depth of twenty-six feet, below which the borings were not carried.

Orders were subsequently given to survey a new line of canal, on the north side of the Christiana and Peach creeks, to approach as nearly as practicable to the feeding waters, and to reduce the summit level adopted in 1804. Directions were also issued to examine the ground between the Great and Little Elk, to determine the practicability of conveying the waters of the latter, in case of need, into the Elk feeder.

From this, and other surveys, it resulted, that the general surface of the country, from the west bank of White Clay creek

to Frenchtown, would not admit of a lower summit than sixty-two feet;—that the ground between the Little and Great Elk would not admit of bringing the waters of the former into the feeder, the lowest part of the dividing ridge, between these streams, proving to be at least 100 feet above the dam at Elk Forge, and composed principally of granite rock;—that the Great Elk, White Clay, and Christiana, could be used on the summit level, but that Red Clay and Mill creeks could not be introduced into the canal above the level of thirty feet.

Orders were likewise given to cause the waters of the Elk, White Clay, Red Clay, and Christiana, to be gauged; and for this purpose, scientific gentlemen proceeded to the ground, early in August, 1823, and continued their examinations throughout that and the succeeding month of September. These examinations were conducted with assiduity and ability, and the results reported to the board in November following.

Letters having been addressed to the War Department, soliciting the co-operation of the Board of Engineers of the United States in the location of a route for the canal, they were met with a promptitude and liberality highly honourable to the government; and instructions were accordingly issued to brigadier-general S. Bernard and lieutenant-colonel J. G. Totten, to proceed to Philadelphia, to afford the requisite aid.

In pursuance of the same object, an application was made to the President and Directors of the Union Canal Company, for the aid of their engineer, Canvas White, Esq.; and we have the satisfaction to add, that the request was received in the most friendly manner, and the services of that gentleman very freely accorded. Measures had previously been taken to obtain the services of Judge Wright, chief engineer of the New York canals; and in July, 1823, these parties, having assembled in Philadelphia, proceeded to the canal ground, attended by a large committee of the board, and by William Strickland and John Randel, jun. Esqrs., who had, as engineers, already rendered important services to the company.

No final determination, however, as to the route, was adopted at this time. Some facts were yet to be established—some truths remained to be elicited—and certain other surveys and calculations to be instituted and formed, preparatory to that interesting event. Fresh instructions, founded on the knowledge obtained, were immediately issued to the gentlemen who had been principally employed in making the antecedent surveys and estimates; and they were further authorized to take to their aid such surveyors and other assistants as should be found necessary. A committee was at the same time appointed to effect conditional contracts, subject to the final ratification of the

board, for the purchase of water-rights, lands, &c. along the several projected routes.

Information having reached the board relative to a dredging machine, which, it was reported, had been successfully employed in excavating the basin at Albany, letters, requesting more detailed information of the plan and mode of operation, were addressed to De Witt Clinton, Esq., Col. Jenkins, superintendent of the Albany basin, and to the proprietor, from each of whom speedy and explicit answers were received.

The United States' engineers having, on the 19th of November, again arrived in the city, the Directors resolved to accompany them, in a body, on another visit to the peninsula. The other two gentlemen of the Board of Examining Engineers, viz. Messrs. Wright and White, also attended. Messrs. Strickland and Randel were likewise of the party.

On the 3d of December, the Examining Engineers reported, in writing, that, having completed the examination of certain plans and estimates, they had adjourned to the 13th of January following.

The engineers reassembled at the appointed time, and on the 20th of the month made their final report—viz.

“After a careful investigation of all the circumstances connected with the important question of the most eligible route for a canal across the Delaware Peninsula, we unanimously recommend the following—viz. Beginning on the Delaware river near Newbold's landing, where an artificial harbour and tide-lock must be provided, the canal should be cut through St. George's meadows to St. George's dam, then to be lifted by a lock of eight feet—thence through St. George's mill-pond, through the dividing ridge of the peninsula, and through Turner's mill-pond to a lock of six feet fall at Turner's mill-dam, and thence along Broad and Black Creeks to a tide lock near the mouth of Long Creek.”

On the 21st of January, this Report was submitted to the Directors, and having been discussed, the board adjourned to the 26th, to afford further time for reflection. At the adjournment, all the members being present, the route, as recommended, was again considered, and unanimously adopted.

The Examining Engineers, from a laudable spirit of extreme caution, placed the maximum cost of this route at \$1,354,364.64 cts.; while John Randel, jr. the projector, whose calculations have been verified by subsequent events, estimated it at

\$1,211,834.7 cts.

To which is to be added the cost of water-		
rights and lands,	- - - -	27,325

Total,	- - -	\$1,239,159.7
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The plan for the northern route, as estimated by the engineer, is - - - - - \$829,036.78 cts.

To which is to be added the sums demanded by the owners of the soil, water-rights, &c.

amounting to \$355,600. The valuation is no doubt overrated, but it might not

be safe to assume it at less than - - 300,000

Total, - - - \$1,129,036.78

The adopted canal will be sixty feet wide at the water line, thirty-six at bottom, eight feet deep, less than fourteen miles long, and lined with stone.

The board pronounce with confidence, that in this line of canal, there are no physical difficulties to be surmounted, which cannot be easily overcome—none to excite the smallest apprehensions or doubts as to its entire practicability and success. By the preceding estimates, it will cost about \$110,000 more than the other. Its superior advantages are:—the entrance into deep water on the Delaware, instead of debouching into a narrow, winding creek, and encountering the delays incident to opposing tides; the entire absence of aqueducts and tunnels; the shortness of the line; the inconsiderable destruction of mill property; the small number of its locks, and consequent saving of attendants, repairs, &c.; the rapid despatch of passing craft; the facility with which it may, at any time, be converted into a ship navigation, should the public accommodation or the interest of the Stockholders demand that improvement; the advantage of position which the deep cut on the dividing ridge presents, for the construction of a bridge over the canal, so as to admit of the ready passage of masted vessels; and, above all, the consoling certainty of *a never-failing supply of water*, for until the tides from the Atlantic shall cease to flow, water cannot be wanting. This catalogue might be greatly increased, but it would swell this report far beyond its due dimensions. The sketch, brief as it is, may serve to show some of the reasons which governed the Directors in their decision of this very important question.

The preparatory measures, pursued by the board, involved an expense of more than ten thousand dollars; but they deemed the money well spent, aware that a hasty determination might have plunged the company into irretrievable error and dismay, the public into disaffection and disappointment, and the work itself into hopeless embarrassment and ruin.

A very interesting duty remained to be performed. Much of the success of the whole scheme would depend on the judi-

cious selection of an Engineer in Chief—a man on whose tried skill and experience the stockholders and the public could rest with confidence. The board were not long in making their choice. However estimable and promising might be the talents of others, no person, within the compass of their knowledge, combined so many of the indispensable requisites for this important trust, as Benjamin Wright, Esq., who had, from the commencement of the New York canals, held so conspicuous a station in their location and successful prosecution. He was applied to, by an unanimous vote; and having, some time thereafter, expressed his consent, he now fills, with credit to himself, and the entire satisfaction of the board, that very responsible office.

One of the next objects to which the attention of the board was directed, was the forming of contracts for the work; and they very early were gratified to perceive that no difficulty would be experienced on this head. Several persons of respectability and science made offers; and the entire line was soon under contract, to able and experienced individuals, on terms which will make a saving to the company of about \$140,000 on the liberal estimates of the Examining Engineers. Effective manual operations were commenced on the 15th day of April last, by the removal of the first sod, near Newbold's landing, in presence of the board, and a considerable assemblage of respectable citizens; and 850 men, and 150 horses, are already actively employed on the works. The men are healthy and contented; and chauntees or houses for their accommodation are erected all along the line, and more are building for their increasing numbers. A hospital, for such as may be sick or injured by accident, is to be erected by means of a subscription on the part of the contractors and workmen; and all practicable means are adopted for the preservation and assurance of their health and comfort. At the date of the last report of the engineer, on the 28th of May, the excavation on the work amounted to 110,559 cubic yards, and the embankment to 2,889 cubic yards; and the result of the work "has entirely dissipated all apprehensions of an insecure foundation, or that extraordinary expense will be incurred in keeping out the water." Indeed, the success which has hitherto attended the operations has fully met the most sanguine expectations of the board.

A subject of no inconsiderable moment, not only to the convenience of craft navigating the canal, but to the shipping interests of Philadelphia, was yet open to the decision of the board—the forming of a convenient and commodious harbour, or basin, on the Delaware debouche. After much reflection

and consultation with the engineer in chief, the following plan was adopted :—

The Delaware harbour to contain about eight acres, supported from the main land by straight buttresses of earth and stone, 405 feet in length, on each side, with a semicircular front of wharf-work, 315 feet in length, on each wing, with an exterior opening or entrance, between the wings, of 100 feet, where the river is about twenty feet deep at low water.

This harbour is already in a state of rapid execution, and is expected to be in readiness to afford shelter, in case of need, to our shipping, the next succeeding winter. It may be proper to add, that the tide-lock on the Delaware, also in a train of preparation for speedy use, has been fixed at twenty-two feet in breadth by 100 feet in length, between the gates; but it is not improbable that it may be found expedient, hereafter, on the increase of business on the canal, to construct another lateral tide-lock, so as to pass vessels of different dimensions without interference or the unnecessary waste of water, and consequent loss of time. A lock of either greater or less volume may be conveniently annexed at any time.

As to the fiscal concerns of the company, it may be useful to remark, that the effective means now provided are—

1. New private subscriptions, - - -	\$425,000
2. Subscription by the state of Pennsylvania, by means of the Philadelphia Bank, - - -	100,000
3. Ditto, by State of Maryland, - - -	50,000
4. Ditto, do. Delaware, - - -	25,000
5. The amount which it is calculated may be received from the old stockholders, - - -	100,000

Together, - - -	<u>\$700,000</u>
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Although the board have well founded expectations of further public aid, they respectfully suggest to the stockholders the propriety of making seasonable provision for conducting the work with spirit, by authorizing, at this time, another subscription. Early attention to this subject is the more needful, in consequence of the tedious delays to which we are reduced by the formalities prescribed in the charters, in every instance of a new subscription. And let it be deeply impressed on our minds, that, however kindly the public authorities may be disposed towards us, our wisest and safest dependence, after all, will be upon our own efforts and means.

Should Pennsylvania fail to retain her present commercial preponderance and connexion with the western states, the fault

will be her own. To effect this end, she has but to second the efforts of nature, who has been so bountiful to her. The means are unquestionably in her own hands. The great New York canal, that stupendous monument of human genius, and for which the state is so largely indebted to her Clinton, will do vast things for the patriotic commonwealth in which it is located; but unless we do so elect, it is not destined to rob Pennsylvania of her western trade. Our central rivers remain open eight or ten weeks longer, during the season of frost, than do the rivers of New York. The last was a remarkably mild winter; yet the Hudson was not navigable at Albany until the first week in March, and the ice in the Buffalo creek did not break up until the close of the same month; nor does the canal itself appear to have been open until the 6th of May; while the Delaware at Philadelphia remained unfrozen the whole season, and vessels continued to pass in and out of her port with scarce one day's interruption from ice.

The Chesapeake and Delaware canal may essentially be considered as opening a new mouth for the discharge of the Susquehanna, by which the waters of that mighty river may reach the Atlantic in a channel 100 miles short of the existing débouché. Vessels drawing seven and a half feet water may navigate this canal, and may be so constructed as to carry immense burdens. We are told that on the Lower Rhine, the Cologne ships of 1000 tons, draw but five feet water: they are fitted with three masts, and are supposed to be the largest vessels employed on inland navigation in any part of the world.

It has been remarked, as a circumstance peculiarly favourable to the internal navigation of Pennsylvania, that all her rivers, flowing from the west, glide smoothly through the mountains, passing them almost without a ripple.

When we survey the regions through which the Susquehanna spreads her extended arms—the variety and fertility of the soil—the salubrity of the climate—the towering majesty and immensity of the forests—the inexhaustible mines of the richest iron and coal,—no river of the Atlantic States will bear a comparison with this noble stream. While her northern and eastern branches penetrate the state of New York, within ten or twelve miles of the great Erie canal, and almost touch the sources of the Delaware, enclosing between them the Seneca and Cayuga lakes, which invite, by their natural forms and geographical positions, a connexion with this great river,—her western tributaries are seen to interlock with the fountains of the Ohio;—thus courting the hand of man to assist her to comprehend in her wide embrace, the interior seas on the north,

the Mississippi on the south and west, and the open ocean on the east.

The Seneca lake may be united to the Tioga branch of the Susquehanna by a canal less than twenty miles in length. The Commissioners appointed by act of the legislature of Pennsylvania, in March, 1817, to explore that route, report, that "the ground will be easily dug, there being no rocky or otherwise difficult ground to pass." Were this canal accomplished, there would, by water communications already existing in the state of New York, be a complete boat navigation from the Susquehanna to Lake Ontario.

A cut of sixteen miles, from Poplar run, a branch of the Juniata, to the Conemaugh, a branch of the Alleghany, would connect the Susquehanna with the Ohio.

There exists at present a water communication between the western branch of the Susquehanna and lake Erie, with portages of only thirty-one miles; and it is asserted, by persons conversant with the subject, that an entire boat navigation may be completed, at a very moderate expense.

While the basin of the Hudson is estimated to contain 14,600 square miles, and the Delaware basin 15,600, that of the Susquehanna includes an area of 20,000 square miles. But it has been very properly said, that, "by a singular caprice of custom, the Susquehanna is considered as terminating at the head of tide water, whilst, in nature, what is known by the Chesapeake bay, is merely the continuation of this noble river; and, in strictness, James river, York river, Rappahannoc river, and the Potomac, are tributaries to the Susquehanna." In this view of the subject, the great basin, drained by her waters, contains an area of no less than between 60 and 70,000 square miles, including a very considerable portion of the richest lands, the most populous, and the best cultivated, of any in the central states. The present resources, and productive capabilities, of this great, fruitful, and interesting tract, defy calculation; but when we look forward to what must be its future wealth and greatness, the mind is absolutely lost in the immensity of the contemplation.

Boats for navigating shoal waters should be framed of light materials, and on the flat-bottomed or scow principle—they should be formed to move on the water, not through it. Steamboats, of this construction, might be used to great advantage on the Susquehanna, and would seem to be most peculiarly adapted to its shallow bed. There can be no want of fuel: there is coal enough, on its banks, to supply all America. One of them, with nothing but her machinery to carry, could tow numbers laden with produce; and while scores of them might

be thus profitably employed, on the 800 miles of that river now navigable, others might be as suitably engaged on the other tributary rivers of the Chesapeake, and, with their respective charges, pass through the canal to Philadelphia.

Another, and, for Philadelphia, not a less flattering view, may be taken of this subject.

From New York to St. Louis, by the way of Albany, Detroit, Michillimacinae, and the river Illinois, the distance is 1745 miles. By the way of Newberg, Hamilton, Pittsburg, and the river Ohio, 1725 miles. From Philadelphia to St. Louis, by Pittsburg and the Ohio, 1426 miles.

It is 800 miles from Lake Erie to the ocean, by the river St. Lawrence; to the city of New York, by the canal, 510 miles; to New Orleans, 2300 miles; and to Philadelphia, by the circuitous route of Pittsburg, 418 miles.

It is 2150 miles from Pittsburg to the ocean, by the Ohio and Mississippi; by Lake Le Bœuf, to New York, 700 miles—by Lake Erie, 790 miles; and to Philadelphia, by the turnpike road, 282 miles.

We cannot indulge in these views, without perceiving the incalculable importance of the Chesapeake and Delaware Canal to the interests of agriculture, commerce, and manufactures. They lead us, moreover, to the irresistible conclusion, that this canal is destined to become the theatre of very active and very extensive business—and that we shall, at no distant day, be most amply rewarded for our anxieties and toils, not only by a rich return of benefits and profits, but by the gratifying reflection, that we shall have achieved a great public good.

Signed by order and on behalf of the President and Directors.

JAMES C. FISHER, *President.*

H. D. GILPIN, *Secretary.*
Chesapeake and Delaware Canal Office,
June 4, 1824.

UNION OF THE ATLANTIC AND PACIFIC OCEANS.

(Continued from page 72, No. 1.)

Water in an ocean flows from a similar cause as in a river, that is, difference of level. The Gulf stream continues with considerable velocity more than fifteen hundred miles. To admit water to flow with perceptible velocity, demands a difference of level or descent of at least half an inch per mile. With this very moderate allowance, the surface of the Gulf of Mexico is above 60 feet more elevated than that of the Atlantic

Ocean. The very same causes which in accumulating water on the south-east coast of North America, forms the Gulf stream, forces the water from the opposing coast and contributes very much to augment the inequality of level in the surfaces of the Atlantic and Pacific Oceans. The retreat of water from the south-west American coast, within the tropics, is no doubt the principal cause of the very few deep harbours existing along that part of the Pacific Ocean.

Commencing our survey at the Gulf of Tehuantepec, and advancing south-east, we first meet with the Chimalapa, a mountain torrent flowing from the north about seventy miles into the Gulf of Tehuantepec. This insignificant stream rises in the mountains of Oaxaca, heading with the sources of the Guasacualco. The latter is also a mere mountain torrent, not above one hundred miles in entire length. The direct distance from the Gulf of Mexico at the mouth of the Guasacualco, to the Pacific at the entrance of the Chimalapa, into the Gulf of Tehuantepec, is about one hundred miles.

From the great elevation of the intervening mountains, it is not probable that a canal communication by this route is practicable. The limit between Mexico and Guatemala, intersects the Pacific Ocean fifty miles south-west from the mouth of the Chimalapa. The province of Guatemala* is a long narrow strip, skirting the Pacific upwards of five hundred miles, and at a mean distance of about fifty miles inland, bounded by a lofty mountain chain. South-east from this central chain Guatemala is bounded, north-east by Chiapa, and south-east by Vesapaz. Chiapa is drained by three rivers, flowing northward into the Gulf of Mexico; the Tobasco, the St. Pedro, and Sumasinta.

By the name of Grijalva, the Tobasco rises in the mountains of Guatemala within less than fifty miles from the Pacific Ocean. Assuming a north-east course, continues that direction one hundred miles, approaches the Intendancy of Vera Cruz in Mexico, but before entering that province, winds to the east fifty miles, enters Tobasco, and turning to south-east about one hundred and twenty miles, falls into the Gulf of Mexico. The San Pedro is, in some measure, a tributary stream of the Tobasco, both entering the same estuary west from Washington City 15°. How far the Tobasco is navigable, or the existing impediments to the construction of canals, has never been ascertained; but, from the elevation of the mountains of Guatemala, we may entertain reasonable doubts, whether any water com-

* The province of Guatemala, similar to the Intendancy of Mexico, gives name to the whole country of which it forms a part.

munication between the two great oceans is practicable by the Tobasco.

The Gulf of Mexico is terminated at the bottom of the Bay of Campeachy, by a sheet of water, very appropriately named "*Gulf of Terminos*." The Sumasinta river flowing from the mountains of Guatemala, in the extreme southern angle of Chiapa, pursues a northern course of two hundred miles into the Gulf of Terminos. The small river Suchitepec, has its source in the opposite side of the mountains from those of the Sumasinta. How well the stream of the Sumasinta is calculated for navigation is yet to be ascertained; from the position of its channel a very direct route from the Atlantic to the Pacific is presented, but it is to be apprehended, that here again the intervening mountains oppose an insuperable barrier. By the valleys of the Suchitepec and Sumasinta, the direct distance from ocean to ocean is within a trifle of two hundred and fifty miles. This is the third route noticed by Humboldt in his Political Essay on New Spain, under the head of general considerations on the possibility of uniting the South Sea and Atlantic Ocean.* This illustrious traveller, to the regret of the whole civilized world, did not examine personally any part of the isthmus of North America, but from such information as he possessed, doubts the practicability of a canal in this region.

The Sumasinta is the last stream of Guatemala which carries its waters into the Gulf of Mexico; but the same elevated tract from which this river draws its sources, gives origin to two other Atlantic rivers of considerable magnitude, the Balize Main, and Acasabastlan. The Balize flows north-east, upwards of three hundred miles over Yucatan, and is discharged by two mouths into the Bay of Honduras: the Acasabastlan or Guatemala flows about two hundred miles nearly due east into the Gulf of Amatique, the extreme western angle of the Bay of Honduras.

That immense bay, bounded on the west by the eastern shore of Yucatan, and south by the northern shore of the peninsula of Honduras, is that part of the Caribbean sea spreading between the continent of North America, and the islands of Cuba and Jamaica. The name of "*Bay of Honduras*," is, however, more particularly applied to that great triangle bounded by Yucatan, Peninsula of Honduras, and a line drawn from Cape Gracios à Dios, to Cape Catoche. Gradually contracted by the continent, this bay terminates in the Gulf of Amatique. The latter opens again inland into the Gulf of Dulce. The Acasabastlan

* Political Essay on New Spain. Vol. 1. Book I. Chap. II. Black's translation, page 13.

river is discharged into the latter, within one hundred miles from the port of Acazulta or Trinidad, of the Pacific.

The Amatique gulf is the estuary of several rivers beside the Acasabastlan. One, the Guanacos, rises in the south-eastern part of Guatemala, and curving east-north-east, and finally north, enters the south-east angle of the Amatique, after a course of two hundred and fifty miles. If the quantity of water corresponds to their length of course, the rivers of Amatique offer one of the most direct routes between the Atlantic and Pacific Oceans. The sources of the Acasabastlan are within less than fifty miles north-east from the city of Guatemala. The depth of water in the harbours of either coast is, however, defectively known, and the intermediate country but partially explored.

South-east from the Acasabastlan, the isthmus rapidly widens into the immense peninsula containing the provinces of Honduras, Nicaragua, and Costa Rica. The mouth of the Acasabastlan, into the Gulf of Dulce, is at N. lat. 15° , and at 12° W. long. from Washington City; Cape Gracioso is at N. lat. 15° , and at 4° W. long. from Washington City. Between these two geographical points the peninsula of Honduras extends upwards of five hundred miles from west to east. In form of a triangle, this part of America presents a port of six hundred miles to the Pacific Ocean; five hundred to the Caribbean Sea; and five hundred to the Bay of Honduras. Connected on the north-west to Vera Paz and Guatemala, by a neck of land less than one hundred miles wide, and on the south-east to Vera-gua by another, of not more than fifty from ocean to ocean, this interesting region contains a superficies of more than one hundred thousand square miles. A narrow slip along the Pacific is well peopled, but the interior in great part unexplored.

Leaving Guatemala, the mountains incline to the eastward, and leave, in the north-western part of Nicaragua, a wider slope to the rivers flowing into the Pacific than exists in the former provinces. The slope towards the Atlantic, is however, as usual, comparatively much more extensive than that towards the Pacific; the former giving source and course to numerous rivers, two of which, Gold river, and Bluefield's river, exceeds four hundred miles in length. Though but imperfectly known, we may safely exclude either of those rivers from a list of those offering a convenient connexion between the waters of the Atlantic and Pacific Oceans, and proceed to examine perhaps the most remarkable feature in American geography, and particularly so in the present inquiry.

The valley formed by the lakes of Leon and Nicaragua, and by the river St. Juan, or St. John, is to the eye, when survey-

ing a map of that part of America, the most natural route offered to human industry to unite the two great American oceans. It is the 4th route from ocean to ocean indicated by Humboldt.* This author observes, that, "Perhaps the communication of the lake of Nicaragua with the Pacific Ocean, could be carried on by the lake of Leon, by means of the river Tasta, which, on the road from Leon to Realejo, descends from the volcano of Telico. In fact, the ground there appears very little elevated. The account of the voyage of Dampier leads us even to suppose that there exists no chain of mountains, between the lake of Nicaragua and the South Sea. 'The coast of Nicoya,' says this great navigator,† 'is low, and covered at full tide. To arrive at Leon, from Realejo, we must go twenty miles across a country flat and covered with mangle trees.' The city of Leon itself is situated on a savanna. There is a small river, which, passing near Realejo, might facilitate the communication between the latter port and that of Leon. From the west bank of the lake of Nicaragua, there are only four marine leagues (12 miles,) to the bottom of the Gulf of Popagayos, and seven (21 miles) to that of Nicoya, which navigators call La Caldera. Dampier says expressly, that the ground between La Caldera and the lake, is a little hilly, but for the greatest part level, and like a savanna."

"The coast of Nicaragua is almost inaccessible in the months of August, September and October, on account of terrible storms and rains; and in January and February, on account of the furious north-east, and east-north-east winds, called Popagayos. This circumstance is exceedingly inconvenient for navigation."—*Political Essay, Vol. 1. p. 20.*

It was my intention to have continued this subject in each Number of the Repository, until all had been given which it was in my power to procure, but on more mature consideration I have concluded to suspend the investigation of the connexion between the Atlantic and Pacific Oceans, until I can have engraved expressly for the purpose, a map of the entire isthmus, between the two continents. The map I hope to have ready for the January Number.

Ed. Repository.

[With the nature, or practicability of Col. Clark's plans of river improvement, I cannot myself speak experimentally, but from the mental and moral weight of the subjoined names, I very cheerfully, and confidently give to my readers the follow-

* Political Essay, Vol. 1. page 20.

† Dampier.

ing extracts from the *Columbian Observer* of Oct. 25th, 1824.
ED. REP.]

TO THE PUBLIC.

The subscribers, desirous of ascertaining the practicability and efficacy of Col. Clark's machine for securing an ascending navigation in rivers obstructed with rapids, proceeded to Trenton a few days since, and witnessed an experiment fairly made, which was attended with complete success. The machine drew up with ease a Durham boat and a large barge, containing sixteen or seventeen persons, in a rapid part of the falls, at the rate of a mile and a third in an hour. With the same or nearly the same facility, it could have drawn up three or four Durham boats, and by the enlargement of the cylinders, or windlasses, and paddle-wheels, the velocity and power could be very considerably increased. After passing the rapids, the boats were drawn with ease into slack-water above. The tow-boat is about forty feet long and nine feet broad. The paddle wheels are ten feet in diameter, and are furnished with twelve paddles or buckets each, which are about six feet long and sixteen inches broad. The cylinder, or windlass, of the main shaft, is three feet in diameter: and the action of the current on the paddle-wheels was such as to cause them to revolve twelve times in a minute.

The subscribers, therefore, regard the plan as highly deserving of public encouragement, and calculated to be eminently and extensively beneficial, not merely to this city, by securing at comparatively an inconsiderable expense an ascending navigation in the Delaware, and thus opening important sources of wealth; but to the nation at large, by affording the same facilities in other rivers obstructed by falls or rapids. The application of the machine on the Susquehanna would very considerably increase the trade on that river; increase in an equal degree the transportation on the Delaware and Chesapeake Canal; and of course enhance the value of the stock of that canal.

It will be said, as it has already been, that it would be far better to open a communication by a canal with the country watered by the Delaware, than have recourse to this expedient. To this we cordially agree, provided it could be cut in one, two, or three years, and at an expense to which the resources of our citizens were commensurate. But when it is considered that the Delaware and Chesapeake Canal, of only fourteen miles, languished for above twenty years—the Union Canal for an equal space of time—that the Merrimack Canal of only 27 miles, in one of the most enterprising states in the union, lingered for thirteen years before it was completed—that the

James's River Canal, patronised by the resources of the great state of Virginia, required many years to complete it—when, we repeat, all these circumstances are duly considered, it will appear obvious that to relinquish the great advantages held out by this plan, and wait for the completion of a canal, would be almost as impolitic as it would be for a settler in the wilderness to remain for years exposed to “the pelting of the pitiless storm,” waiting till he should be able to build a handsome three story stone house.

Under this view of the subject, the subscribers recommend the call of a meeting of the citizens of Philadelphia, to take into consideration the measures necessary to be adopted, to effect the formation of a company for the purpose of carrying Col. Clark's plan into operation; for procuring an act of incorporation; and for opening a correspondence with the citizens residing on the banks of the Delaware and its tributary streams, and in the circumjacent country, in order to invite them to co-operate in this undertaking.

Mathew Carey, Isaiah Lukens, Thomas Fletcher, Benjamin Tilghman, Richard Peters, jun.

Philad. Oct. 15, 1824.

The subscriber was present with the above named gentlemen, when Col. Clark's machine was in operation, and cheerfully concurs in the declaration of the complete success of the experiment.

G. H. MANIGAULT.

We, the undersigned, citizens of Bucks county, Pennsylvania, and its vicinity, certify, that we witnessed Mr. E. Clark's tow-boat in operation, on the falls of the Delaware, near Trenton. It towed with great facility and considerable velocity, a Durham boat of the largest size, and a large barge, which together contained sixteen or seventeen men, through a portion of the rapids, and from the rapids into comparatively slack water at the head of the falls, and we are well convinced that this boat, or rather that boats constructed to operate on this plan, would, were the channels of our rivers improved, greatly facilitate the upward navigation, and be productive of highly important public benefit.

David Eastburn, Joseph Crozer, Samuel Eastburn, Moses Winner, Peter R. Walker, James Cearn, Alexander M. Alexander.

Morrisville, Oct. 10, 1824.

We, the undersigned, citizens of Morrisville and its vicinity, certify, that we have repeatedly witnessed Mr. E. Clark's

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tow-boat in operation, and that it tows Durham boats, partly loaded and unloaded, with great ease and expedition through the head portion of the rapids at the falls of the Delaware, opposite the city of Trenton, into comparatively slack water above the falls.

Joseph Meirs, John S. Meirs, Andrew Alexander, Thomas Anderson, Benjamin Hamilton, William Moon, Edward Thomas, Thomas Clark, John Clarke, Thomas Winner, Ezekiel Jackson.

Morrisville, Oct. 11, 1824.

We have witnessed Col. E. Clark's tow-boat in operation on the falls of the Delaware, opposite Trenton, ascending the rapids with great facility into comparatively slack water, and we have great pleasure to add, that in our opinion, it will prove a valuable mode of navigating the rapids in rivers whereon it may be adopted.

P. Gwinner, Richard Holmes, William B. Cooper.

Morrisville, Oct. 11, 1824.

FRANKLIN INSTITUTE.

Yesterday morning the first annual exhibition by the Franklin Institute, of articles of American industry, commenced at Carpenters' Hall,—it will be continued this day and Wednesday. The specimens produced present some of the most finished articles of manufacture that have ever been produced in any country. The premiums are to be awarded this day.—*National Gazette, October 19th, 1824.*

The exhibition of the *Franklin Institute* at the Hall of the Musical Fund Society in Carpenters' Court was mentioned in our columns yesterday; but it deserves another and more particular notice. It has been open since Monday morning, and has attracted crowds of respectable visitors, who, in admiring the variety and beauty of the display of domestic manufactures, have felt a patriotic excitement as grateful to the heart as the exhibition is to the eye.

This first attempt of the Institute relatively to one of its principal and truly laudable objects, deserves to be universally and studiously countenanced. Such annual collections of fine specimens of the skill and industry of our artists and mechanics are fitted to produce various beneficial effects for them and the nation.—They afford a knowledge of what is done and of the excellencies and deficiencies of American workmanship; they

enable useful investigations and comparisons to be made; they bring the manufacturers of different articles into closer and more active acquaintance and connexion with each other; they excite, among both young and old, a salutary spirit of pride and emulation; they tend to give reputation and notoriety to the most ingenious and able; they create a fair or market in which all classes may seek amusement, and in which wants may be supplied, sales effected, contracts undertaken. These advantages, and others, have been found to accompany them in Europe wherever they have been tried; and in France particularly, where we ourselves have witnessed their usefulness. The mechanic arts have made advances so great in the United States, and are pursued with genius and success so minutely and generally, that exhibitions may be expected ere long which, if not as splendid or extensive as those of Europe, will be scarcely less deserving of attention, wonder, and national complacency.

The present display of the Franklin Institute, remarkable as it is, is necessarily imperfect, and merely indicative of the great resources possessed for the purpose, which, perhaps, is not as yet duly comprehended and appreciated. There was not time for extensive preparations and systematic arrangement: a number of the articles did not arrive until after the commencement of the exhibition; several splendid ones, intended for it, could not be finished in season, and are reserved for the next, which will be held in a room several fold more spacious, and is expected to be considerably larger and more diversified. The number of articles now brought together is nearly one thousand; and most of these can be commended as either of great promise or positive excellence and beauty. We noted in our cursory survey—

A large and beautiful model of a pure Greek Temple, of the first rank, supported by nearly one hundred columns: an elegantly finished and polished marble mantel, by Mr. Struthers, of this city: a highly ornamented coal grate, by Morris: a piano forte of fine tone and rich workmanship, by Loud: a very fine piano, by Geib: flutes and bassoons by Catlin, equal in quality to Clementi's and at half his prices: a beautiful portable desk similar to that presented by Lafayette to the captain of the Cadmus: several articles of cabinet ware by West, inlaid with bird's eye maple: ladies' work boxes, very elegant: surgical instruments, by Schively: several samples of grass and straw bonnets, fine and elegant: silver vases richly chased, by Fletcher and Harvey Lewis; busts of Lafayette, by Rush and Persico: models—of a steam engine, Clark's towing-boat, of Fair Mount water-wheel, an improved canal lock: an im-

proved clock :—thermometers and barometers, by Fisher: morocco leather: handsome paper hangings: articles of leather: lamps, hanging and mantel: an ingeniously contrived machine for making stove pipe: samples of first quality blistered steel: do. of iron: cast iron chain, for garden fence: samples of japanned ware: many samples of cotton goods, some very fine, made of cotton raised in Philadelphia county: imitation of blue nankeen, linen napkins, flannels, negro cloths, sattinets, fine blue cloth, ditto from Steubenville factory: a sample of fine silk raised in Philadelphia county: oil cloth, various patterns: gilt buttons: screws: samples of fine soap: a repeating single barrel rifle: splendid cut glass, from Boston and Pittsburgh factories: sample of endless paper, from Gilpins' mill: samples of fine printing and binding: ditto of engraving: an electrical machine and air pumps, by Mason: domestic carpeting: &c. &c.

The Franklin Institute was organized in January last year. It already counts from four to five hundred members, and has a constant accession of them. Its object is the greater prosperity,—the universal improvement,—of the mechanic arts in America. Its regular Professors deliver respectively courses of Lectures on Mineralogy, Chemistry applied to the Arts, Mathematicks, Mechanicks, Architecture, &c. It possesses a collection of models and samples, and a library, which increase fast and must soon be highly valuable.—When its funds shall be adequate, a suitable edifice to contain its collections will be erected. At its anniversary dinner the wines of the United States are used. The annual subscription is three dollars.—

[*National Gazette*, October 20th, 1824.

To the Board of Managers of the Franklin Institute of the State of Pennsylvania for the Promotion of the Mechanic Arts:

The Committee appointed October 7th, 1824, to draft the third quarterly Report to be offered by the Board to the Institute, present for acceptance, the annexed draft.

All which is respectfully submitted, by

WM. H. KEATING,
THOS. FLETCHER,
Committee.

October 21st, 1824.

To the Franklin Institute of the State of Pennsylvania for the Promotion of the Mechanic Arts, the Board of Managers offer their Third Quarterly Report.

Your Board have devoted their attention to the various important objects confided to them, and present the result of their

labours under three distinct heads, viz:—First, *Lectures*—second, *Collections*—third, *Exhibition*. With a view to establish a regular system of Lectures, it has been resolved that the winter courses should commence on Monday, the 1st of November, and be continued on the evenings of every Monday and Saturday, at half past seven o'clock, precisely. The courses to continue until the 15th of March. The Saturday evenings will be reserved for the lectures on Chemistry. The Monday evenings will be devoted to lectures on Architecture and Mechanics, alternately. The same regulations that existed last spring with respect to the admission of the sons and apprentices of members to lectures, have been continued—members may therefore provide themselves with tickets for the younger persons in their families, at the rate of one dollar each for the winter. These tickets, as well as those of the members, may be had on application to the treasurer, Chesnut street. Arrangements having been made for the commencement of the lectures punctually at the hour prescribed, it is respectfully suggested to those who propose to attend them, that they be early in their attendance, as those who come late, besides losing part of the lecture, necessarily interrupt the lecturer.

In order to allow to the professors on Mechanics and Architecture, an opportunity of exemplifying the subjects of their lectures, by models, measures have been taken by your Board to expedite the preparation of them, and it is hoped, that a sufficient number will be prepared, to enable the professors to do justice to the tasks assigned to them.

The exhibition, which has just closed, has been, it is believed, attended by a sufficient number of the members of the Institute, and of the public at large, to enable them to perceive the immense advantages which will accrue from the system of annually uniting the products of our manufacturers, mechanics and artists, and bringing them all together before the public. The imperfections which attended the first exhibition, proceeded, it is believed, from inexperience, and from the hurry in which it was got up. The public have expressed their indulgence for the deficiencies accruing therefrom. It is believed that no person who visited the room, left it without a feeling of honest pride, at the extent and perfection which our manufactures have already attained.—As the various committees appointed to judge of, and report upon the merit of the articles exhibited, have not yet prepared their reports on the same, it would be premature in us to offer any comments on the merit of the many articles that were sent.—It is expected that the premiums will be awarded on Thursday, the 28th instant, at half past four o'clock; and it is contemplated that a detailed

report of the whole of the proceedings, and a designation of all the articles exhibited will be published as soon as possible.—The first fruit of this exhibition has been a considerable accession to the list of the members of the Institute.—Independent of five members elected during the course of the quarter, eighty-five have been proposed and elected since the commencement of the exhibition, making an aggregate of ninety members since July last.

The Board have also elected four honorary members, with whom they expect to establish a valuable correspondence. These gentlemen are—

1st. John Franklin Caruthers, A. B. President of the Franklin Society, Lexington, Virginia.

2. Professor Edward Graham, of Washington College, Lexington, Virginia.

3. Professor John Griscom, of New York, and

4. Samuel Parks, LL. D. &c. of London.

An object of much importance, but to which your Board have as yet been unable to attend, is the establishment of the Library and Cabinet of Minerals, which they have reason to believe will, as soon as commenced, meet with a great and rapid increase. The want of a suitable hall, in which to deposit these collections, has hitherto prevented your Board from turning their attention to this subject, but the agreement which they have just concluded with the Carpenters' Company, will remove the only difficulty in their way.

Your Board have much satisfaction in informing you that they have contracted with that company for the whole of the building known by the name of "The Carpenters' Hall," at the rate of five hundred dollars per annum. By renting the second story to the present tenants, the expense will be reduced to two hundred and twenty-five dollars, and it is believed that the rent will be reduced still lower by adopting the judicious system of letting out the hall on the lower floor at the times when the Institute will not require it.

The Board believe that a hall, so central and so adequate for the various purposes of lecturing, holding the collections of the Institute, offering a suitable place for the meetings of the Board, and of the Society at large, could not have been obtained on easier terms.

The Board have several other objects in contemplation, which as soon as they are determined upon, shall be laid before the Institute.

All which is respectfully submitted.

Philadelphia, Oct. 21, 1824.

[National Gazette.

In the accounts extracted from English and French papers, we learn that the death of Louis XVIII. was transmitted to Calais by a telegraphic despatch in a fraction of one hour. There is nothing in the history of the human mind so calculated to excite our astonishment, as the slowness with which many of the most useful inventions make their way into practice. Herodotus, in his *Terpsichore*,* mentions the fact that Aristagoras of Miletus, brought to Sparta a map of Asia, or of the Persian empire, *engraved on copper*; and yet, two thousand years elapsed afterwards before the art of printing maps from engraved plates was known in Europe. At this era every man of the most common information, knows that by means of telegraphs, intelligence can be conveyed from one place to another, with a rapidity which outstrips the winds in greatest violence; and still places remain unconnected by telegraphs with a negligence which is shameful, to say the least. No news of moment ought to be known in either New York, Philadelphia, or Baltimore, in a clear day, two hours before it was communicated to the two other cities. In reality to keep pace with other improvements, a line of telegraphs should be drawn from one extremity of the United States to the other. In peace, such a cordon would be of the utmost utility, and in war invaluable. I say in war, from a conviction that nations can no more avoid the occurrence of that scourge, than can individuals sickness and death. It is to be hoped that whilst we are excavating artificial rivers over the most rugged of our mountains, that a far more necessary source of power will not be much longer neglected.—ED. REP.

Morrison, Prince and Craig, who were under sentence of death at Montreal, have been pardoned by Sir Francis Burton, on condition that they immediately leave Canada.—*Aurora*, October 30th, 1824.

No national insult ought to be more promptly noticed, and resented, than for one sovereignty to thrust its criminals on another. It must be obvious to a man of good sense, and such is the character of Sir Francis Burton, that the miscreants discharged at Montreal must remove to the United States. If such a transfer is accordant with the laws of nations, then it would be a service to humanity to throw Puffendorf, Ward, Vattel, and Burlamaqui into the fire; we have in all conscience, crime enough in the United States, without an importation from Canada, and we have a right to hope that serious remon-

* Beloe's Translation, Vol. I. page 477. London, 1819.

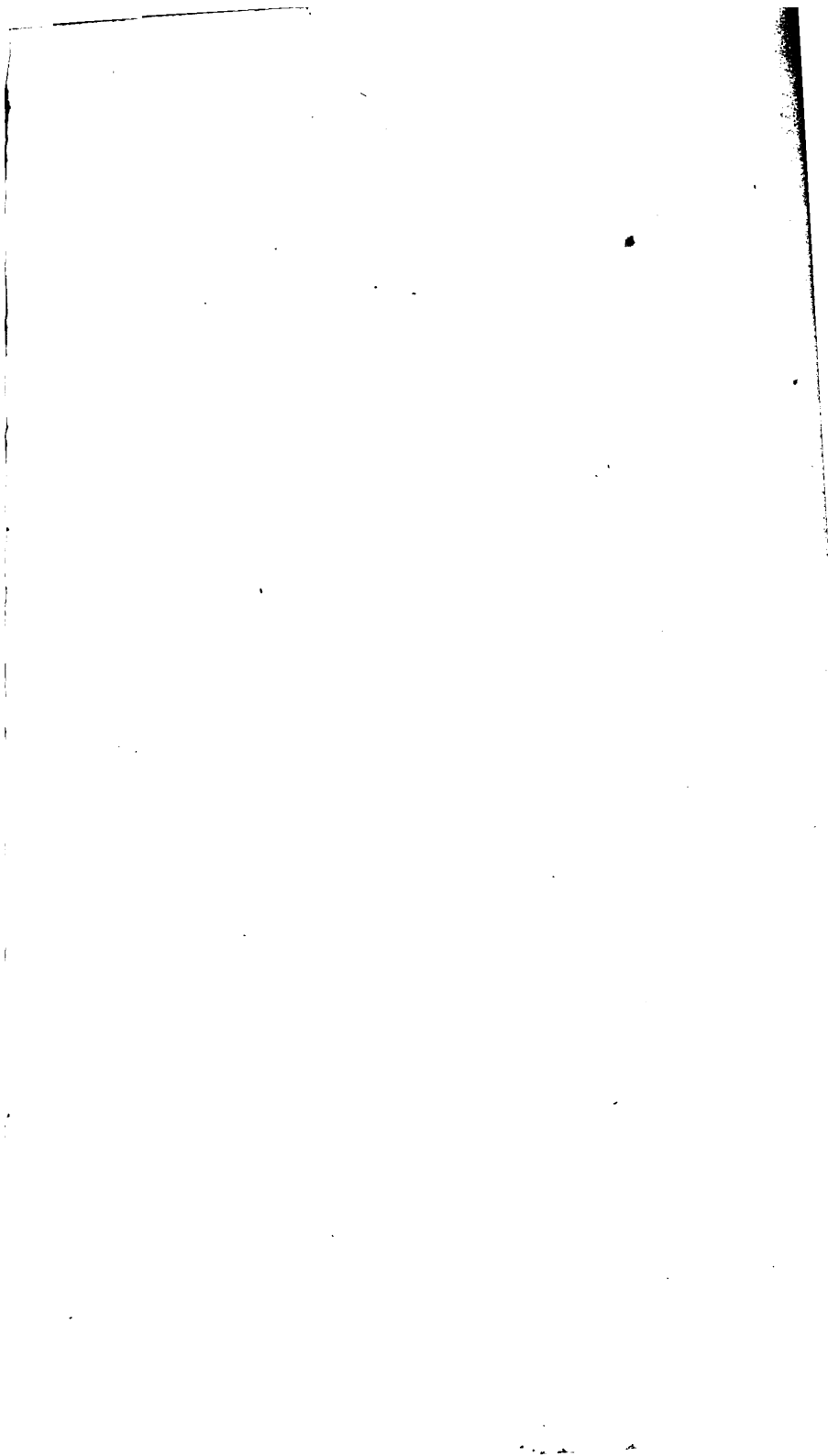
strance from our government, will prevent depraved and outlawed villains from being thrust into our society, or that retaliation by sending Sir Francis an equal number of our condemned malefactors. In serious earnest, I have never felt my feelings as an American citizen, more roused than on reading this extract.—ED. REP.

My Repository was established in order to aid with all my feeble means, national improvement. In the third section of this number, I have given Col. Clark's project as reported, a place. To disrespect such a list, would be nothing else than madness: I very well remember when the *project* of propelling vessels by steam was treated with contempt, by men very richly deserving to be paid in their own coin. I give the appended extract from the United States Gazette; at the same time I do so that both sides may be heard, and placing at the same time my unqualified dissent against any attack on an incipient plan. Where would have been the highest discoveries ever made by man, if such obstacles to intellect had been successful?—ED. REP.

To the Editors of the United States Gazette.

Gentlemen,—I have observed in your paper of October 19th, a report of Messrs. Mathew Carey & Co., on the subject of Mr. Edward Clark's tow-boats. As it is in vain to reason with men, who state that to increase the diameter of the paddle wheels, and also the windlass, which is driven by the paddle wheels, will considerably increase the power and velocity, I propose a plan to put the whole matter at rest, and that is simply this: to run his tow-boat up to Easton, and attach to it as many Durham boats and as much loading as he may choose, and then compare the expense by his plan, with the expense by Durham boats in the usual way—we shall then know whether the old or the new plan is the best. The daily passing of boats and arks, from Easton to Trenton is irresistible evidence, that the channels are already made for arks of fifty tons burden in the lowest water. If the views of Mr. Clark's friends be correct, they should advise him to take the plan I have proposed, and I will promise him that his project will require no blowing to get whatever subscription would be necessary.

A Friend to Practical Work.



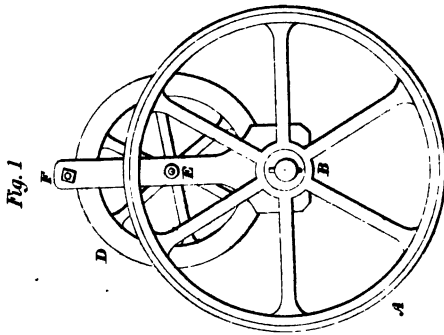


Fig. 1

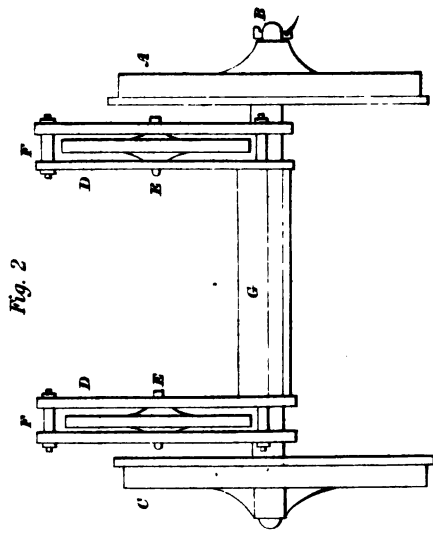


Fig. 2

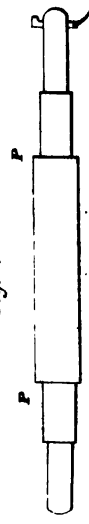


Fig. 4

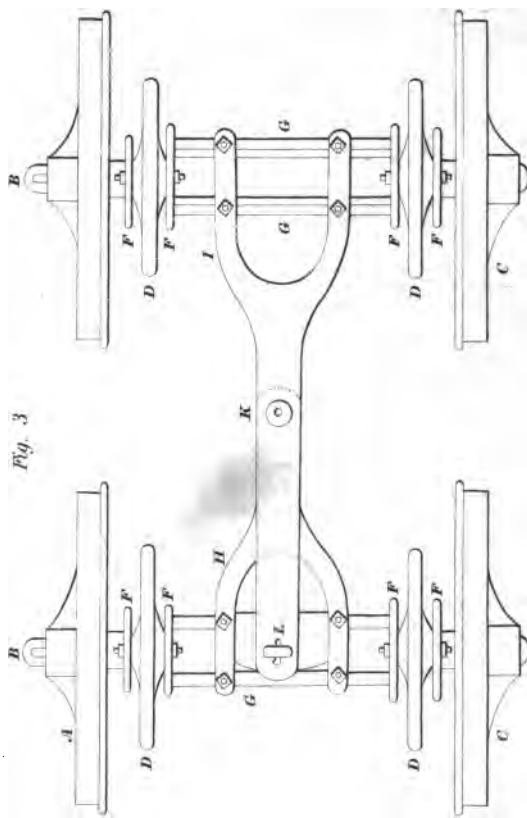


Fig. 3

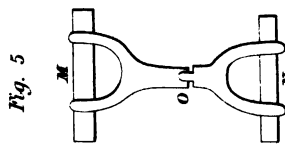


Fig. 5

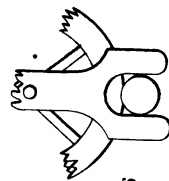
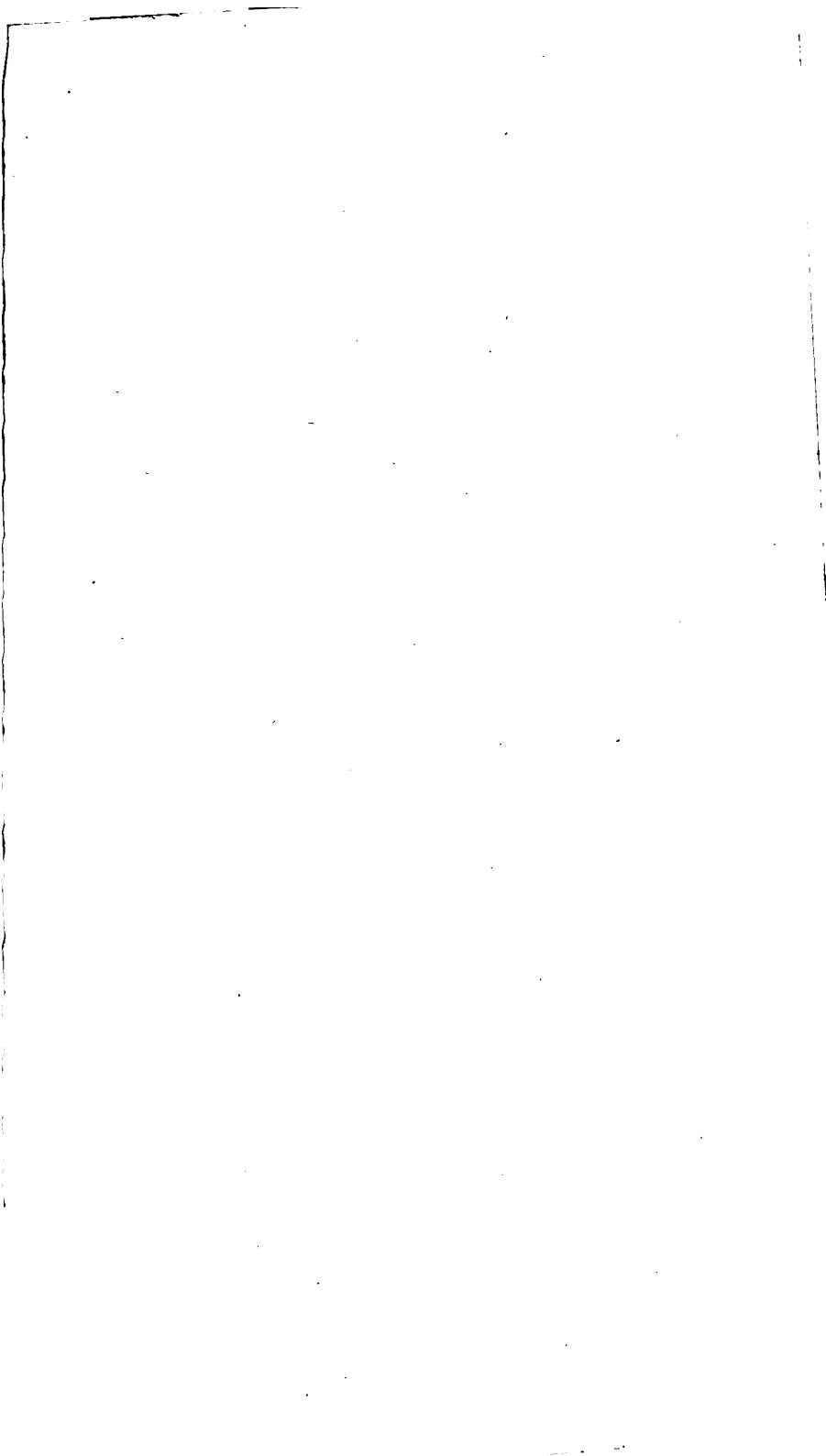
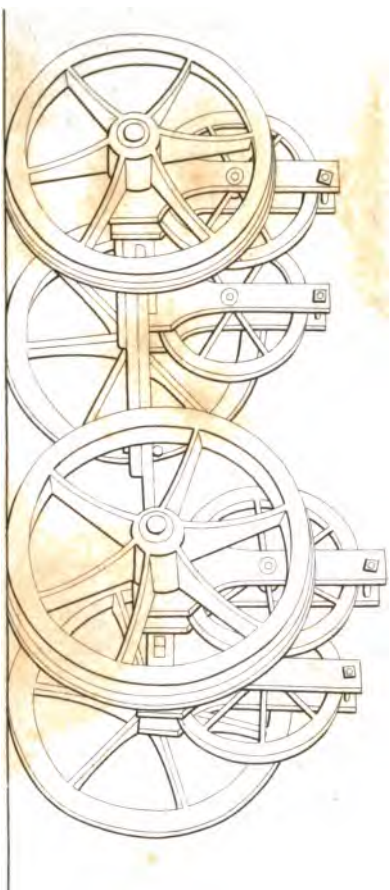


Fig. 6





HOWARD'S RAIL-WAY CARRIAGE.



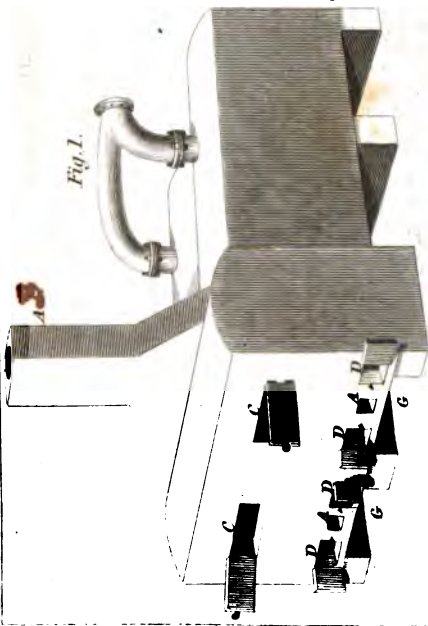


Fig. 1.

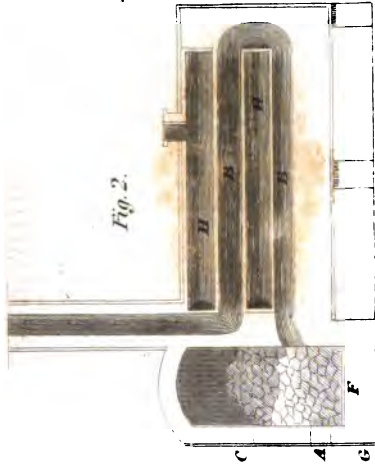


Fig. 2.

Fig. 3.

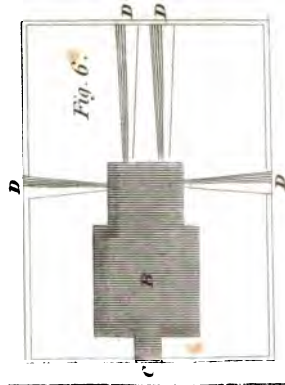
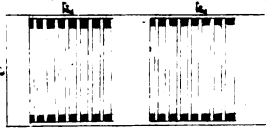


Fig. 6.

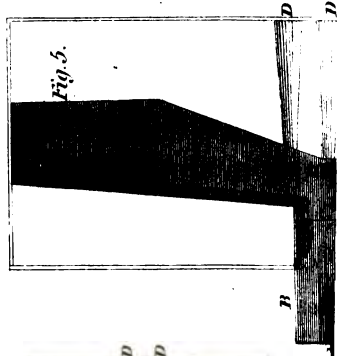


Fig. 5.

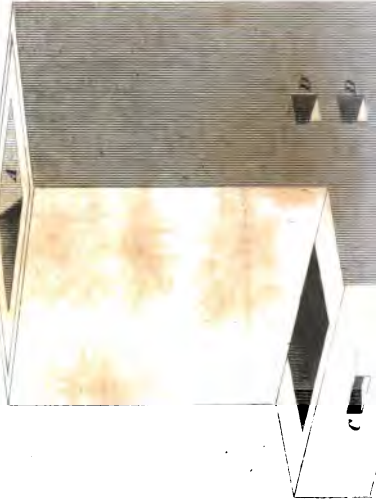


Fig. 4.



